JRC Scientific and Technical Reports

34th PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-10-02)

PLENARY MEETING, 12-16 JULY 2010, Copenhagen

Edited by John Casey & Hendrik Dörner

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The Scientific, Technical and Economic Committee for Fisheries (STECF) has been established by the European Commission. The STECF is being consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations.

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TABLE OF CONTENTS

34th PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-10-02)

PLENARY MEETING

12-16 JULY 2010, COPENHAGEN

1. INTRODUCTION

The STECF plenary was hosted by the Institute of Food and Resource Economics (FOI), Copenhagen University, Frederiksberg (Denmark), from 12 to 16 July 2010. The Chairman of the STECF, Dr John Casey, opened the plenary session at 14:00h. The terms of reference for the meeting were reviewed and the meeting agenda agreed. The session was managed through alternation of Plenary and working group meetings. Rapporteurs for each item on the agenda were appointed and are identified in the list of participants. The meeting closed at 16:00h on 16 July.

2. LIST OF PARTICIPANTS

Contact details are attached in ANNEX I.

MEMBERS OF THE STECF:

Abella, J. Alvaro (Rapporteur)
Andersen, Jesper Levring (Vice-chair, Rapporteur)
Bailey, Nick (Rapporteur)
Balguerias, Eduardo
Cardinale, Massimiliano (Rapporteur)
Casey, John (Chair, Rapporteur)
Curtis, Hazel
Di Natale, Antonio (Vice-chair)
Dobby, Helen (Rapporteur)
Gascuel, Didier (Rapporteur)
Gustavsson, Tore (Rapporteur)
Kirkegaard, Eskild (Rapporteur)
Kraak, Sarah (Rapporteur)
Martin, Paloma (Rapporteur)
Somarakis, Stylianos
Stransky, Christoph (Rapporteur)
Vanhee, Willy (Rapporteur)

INVITED EXPERT:

Bertignac, Michel (Rapporteur)
Connolly, Paul
Hintzen, Niels

Malvarosa, Loretta

EUROPEAN COMMISSION:

DG- Maritime Affairs and Fisheries (MARE)

Angot, Veronique
Borges, Lisa
Daniel, Patrick

JRC- STECF secretariat:

Biec, Virginia
Dörner, Hendrik

Members of the STECF not present:

The following members of the STECF informed the secretariat that they were not able to attend the meeting:
Daures, Fabienne
Döring, Ralf
Figueiredo, Ivone
Graham, Norman
Hatcher, Aaron
Kuikka, Sakari
Parkes, Graeme
Polet, Hans
Prellezo, Raul
Sabatella, Evelina
VanHoof, Luc
VanOostenbrugge, Hans

3. INFORMATION TO THE PLENARY

3.1. Renewal of the STECF plenary – State of play

P. Daniel (DG MARE) informed on the state of play of the renewal of the STECF. The call for applications was published on the DG MARE fisheries web site (http://ec.europa.eu/fisheries/call_for_application_stecf_en.htm). The deadline for applications was extended from 4 June to 18 June 2010. DG MARE received 88 applications in response to the call for applications. A minimum of 30 scientific experts and a maximum of 35 scientific experts will be selected and designated as members of the STECF Plenary. Other scientific experts who are found suitable to serve in the STECF but who are not appointed will be included on a reserve list. DG MARE is aiming to finalize the selection procedure during the forthcoming weeks. The November 2010 STECF plenary meeting may be the 1st meeting of the new STECF.

3.2. Visit of Court of Auditors – Audit of EU measures to reduce overcapacity of EU fishing fleets

The European Court of Auditors (Unit NR6 Fisheries, Environment, Health) visited the STECF plenary to inform on the forthcoming 'Audit of EU measures to reduce overcapacity of EU fishing fleets' and to outline the information it would like to receive from the STECF. The CoA visit was not a formal agenda item and discussions on what the CoA could receive as useful input from the STECF took place between the STECF bureau (STECF chair and vice-chairs, DG MARE STECF focal point, and secretariat) and C. Friel. The STECF reports on balance between capacity and recourses (SGBRE), the most recent SGMOS reports on the evaluation of fishing effort regimes, the most recent consolidated review of scientific advice report, and the annual economic reports were identified as potentially useful documents for the CoA. The secretariat will provide these reports to the CoA. The secretariat gave a presentation to the CoA on STECF explaining rules, work program and procedures.

3.3. Information and discussion about results SG-MOS 10-06a

The STECF is asked to discuss and to comment the content of the SG-MOS 10-06 report, which has not to be considered as a formal opinion delivered by a sub-group of STECF and to be possibly endorsed by the STECF plenary, but which reflects progresses made on the methodology and preparatory work supporting the evaluation and assessment process of multi-annual plans.

DG Mare (V. Angot) outlined the progress made during the SG-MOS 10-06a meeting held in Lyngby, Denmark from 7-11 June 2010. The meeting was scheduled as part of the STECF timetable to undertake assessment and evaluations of multi-annual management plans proposed in October 2010.

The report of the SG-MOS 10-06a WG presents an agreed way forward to undertake assessments or evaluations of 5 separate multi-annual management plans. It represents the output of a scoping meeting between scientists, stakeholders and policy managers and as it represents a work in progress with no direct scientific opinion or advice on policy, the report need not be formally adopted by the STECF. Nevertheless STECF will formally review the outcomes of the subsequent meetings scheduled for October 2010 and 2011 and give its endorsement accordingly.

Five multi-annual plans were taken into account by the SG-MOS 10-06a participants, two for a future evaluation - the Baltic Sea cod management plan and the Southern hake and *Nephrops* management plan - and three for assessment -the North Sea sole and plaice multi-annual plan, the Western Channel sole multi-annual plan and the Bay of Biscay sole multi-annual plan.

STECF members, JRC and invited experts, RAC representatives, national administration representatives and DG Mare desk officers attended the meeting. Discussions were held on suitable methodologies and modelling approaches to be used or developed, data needed to carry out the evaluations and assessments, possible sources of complementary information to these once made available through the Data Collection Framework and on possible tactical management options or alternatives to be assessed. STECF agreed that the approach outlined in the report was appropriate.

As foreseen in the roadmap and methodology endorsed by the STECF, the next steps will involve the evaluation or the assessment of multi-annual plans during the planned SG-MOS meetings (SG-MOS 10-06b; impact assessment for a North Sea plaice and sole multi-annual plan; impact assessment for a Western channel sole; evaluation of the Southern hake and Nephrops; evaluation of the Baltic Sea cod management plan management plan) or work to be included in the 2011 STECF work programme (assessment or a Bay of Biscay sole multi-annual plan).

STECF comments

The STECF notes that this scoping meeting and results made available in the SG-MOS 10-06a report appear fully in line with steps of the assessment and evaluation process already endorsed. STECF recommends the SGMOS-10-06a report to be published as reference document.

3.4. Discussion on a possible support to facilitate the involvement of scientists when assessing stocks covered by in RFMOs

Background

The Commission and Member States find more and more difficult to ensure the presence of EU scientists within the RFMOs Scientific Committees and Working Groups for different reasons (multiplication of the meetings, lack of financial resources in the administrations, etc).
One other additional and fundamental question to ensure in the medium term period a global and effective presence of EU scientists within RFMOs scientific meetings is how to motivate scientific experts to attend and how to create incentive for them to attend.
Participation in RFMOs scientific meetings requests a considerable amount of time and energy to the scientific experts (preparation of the meetings, attendances very often implying long trips, discussions on the spot (some time difficult), reporting to the Commission and Member States), and this huge amount of work often remains "hidden", as the scientists contributions are not officially recognised in the scientific international environment (outside the RFMOs) and they

do not constitute valid titles for their careers as it is, for instance, the case for official publications in international scientific reviews.

Terms of Reference

The STECF is asked to discuss how it would be possible to create valid incentives for the EU scientists to motivate them in participating in RFMOs scientific activities and how it would be possible to recognise their participation and contributions (scientific papers, studies etc) presented in RFMOs contexts, within the international scientific environment, and how these contributions could then be taken into account for the careers of these scientists?
In addition, the STECF is requested to discuss the possible need and the suitability to develop a new sub-group specifically dedicated to scientific tasks related to stocks assessment of the main tropical tuna stocks. Tasks a possible STECF sub-group on highly migratory stocks would be entrusted with will have to be discussed and could be as follows:

1) Coordination of the EU scientists' works notably as regards presence within the RFMOs scientific committees and scientific working groups
2) Contribution to elaborate an EU line of action for the RFMOs scientific committees and scientific working groups
3) Evaluation of scientific data collection and transmission to RFMOs
4) Overall analysis of the action and works of the RFMOs Scientific Committees and scientific Working Groups in relation to stock assessment of the main targeted species under the competence of RFMOs (models used by the RFMOs SC, scientific advices, etc.)
5) Following the action foresaw in point 4, identification of weaknesses in the RFMOs Scientific Committees works and approaches to stock assessment
6) New stock assessments of the main targeted stocks of highly migratory species of commercial interest for the EU fleet, managed by RFMOs
7) Elaboration of proposal of eventual scientific initiatives/studies/research to be launched or supported by the EU for enhancing a scientific based management of highly migratory stocks within RFMOs

STECF response

While recognizing that the participation of scientific experts in RFMO expert groups is fundamental to the provision of appropriate scientific assessments, evaluations and advice, it is clear that the issue of how to ensure appropriate participation of such experts and personal recognition covers a wide remit. STECF briefly discussed such issues, but given the complexity and the related institutional arrangements relating to them and because this item was not listed as a priority issue on the meeting agenda, STECF concluded that it was not able to provide a sufficiently comprehensive informed opinion at the present time. STECF was also of the opinion, that it is not likely to be entirely appropriate for the Committee to provide a satisfactory solution to the request without additional information on potential institutional arrangements. Accordingly, STECF regrettably decided that a formal response to the issues raised need to be revisited at a later date after wider consultation among the parties involved.

4. ASSESSMENT OF WORKING GROUP REPORTS

4.1. SGMOS-09-03, 09-04 & 09-05: Assessment of Fishing Effort Regimes - Part 3

Background

STECF is requested to review the report part 3 of the **SGMOS-09-03, 09-04 & 09-05 Working Group** of 2009 meetings, evaluate the findings and make any appropriate comments and recommendations.

Terms of reference:

The detailed terms of reference for the SGMOS-09-03, 09-04 and 09-05 Working Group are to be found in Annex I.

Background

STECF is requested to review the reports of the **SGMOS-09-05** of September, 2009 (ISPRA) meeting, evaluate the findings and make any appropriate comments and recommendations. Preliminary reviews were provided at the STECF autumn meeting 2009 (ref) and STECF spring meeting 2010 (ref) since the SGMOS group was at that time still finalising the three constituent reports.

The working group was requested for:

1 – an assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Baltic Sea cod management plan R(EC) No 1098/2007 and in Annex II to Regulation (EC) No 43/2009;
2 – an assessment of fishing effort deployed by fisheries and métiers which will be affected by the extension of the cod recovery plan to the Celtic Sea
3 - Assessment of fishing effort and evaluation of management measures to be assessed in 2009 (Deep sea and Western Waters effort regime)

The STECF subgroup SGMOS Effort Management (previously SGRST) has since 2004, performed the task of collating and evaluating effort and catch data for fisheries operating under the Annex II A-C regimes. In 2009 SGMOS was asked to provide analysis according to the original cod recovery plan and also the revised cod plan with its simplified gear categories. A significant management development in the new cod plan was the direct linking of effort management to achievement of fishing mortality targets. Crucial to this process was the establishment of effort baselines and an annual evaluation and adjustment of effort. The latter has brought the work of SGMOS into sharp focus and the effort material has become the subject of close scrutiny and debate. During 2009, ongoing discussions about a cod plan for the Celtic Sea led to a request for STECF to update the effort information first provided for this area in 2008. The 2009 STECF SGMOS effort meetings also evaluated effort and catches in the Baltic Sea and two other existing management regimes, namely the Western Waters Regulation and Deep Sea Regulation. In view of the requirement once again for evaluation of effort data, the group was well placed to deal with these. However, there were specific deep sea issues and questions involved in this work and suitable experts attended an additional meeting to deal with these.

TORs addressed by STECF SGMOS

The TORS given to SGMOS are listed in Annex I. Overall, the TOR list was extensive and demanding although STECF notes that the Commission acknowledgement that the Western waters and Deep Sea work represented a starting point for a longer term process and that it was unlikely that all questions would or could be answered immediately.

Approach adopted by Study Groups

The data call was issued on 16th March 2009 (corrigendum 19th March).
The Study Group met on three occasions in 2009. Inter-sessional work was carried out prior to the final meeting. STECF notes that data shortfalls and data revisions received throughout the process impaired the group's progress and restricted the time available for data synthesis and interpretation. Two significant updates involving Danish and French data were received and incorporated after the final meeting (in November and December respectively). A decision was taken not to incorporate data revisions received after the 9th December 2009 although STECF is aware that some member states made further submissions direct to the Commission after this date; these are not incorporated in the reports.
The group agreed that the extensive and diverse data and issues addressed would benefit from presentation in three reports covering respectively Baltic Sea (part 1) Annex II and the Celtic Sea (part 2) Deep Sea and Western Waters and (part 3). STECF notes that decisions were taken to streamline the material contained in the reports by adopting an area based presentation and by providing some of the material on the JRC website only.

Progress and Status of Reports
The report covering the Baltic Area (STECF SGMOS 09 05 Report part 1) was completed in January 2010 and reviewed by STECF by correspondence during March.
The report covering the Annex II effort management regime was completed in April 2010 and was reviewed at the April STECF plenary meeting
The Deep Sea and western Waters Report (Part 3) was completed in July 2010 and has been reviewed at this Plenary meeting. **The rest of this section refers only to The Deep Sea and Western Waters Report.**

Summary of SGMOS 09 findings

A summary of the key observations made by the STECF SGMOS Effort Management Group for the Deep Sea and Western Waters are given in Annex VI.
Annex VI highlights a number of general observations and issues affecting the overall process of collating and evaluating effort data before providing some area specific observations.

STECF comments and conclusions

General comments and conclusions on data availability are followed by those specific to Deep Sea and Western Waters issues.

- STECF notes that the work of SGMOS is to collate and summarise data provided by member states. In this respect the output is dependent on timely submission of accurate material and STECF SGMOS is only able to provide an output which reflects the quality of these data. While every effort is made to accommodate updates and revisions from member states, it is not possible to capture all of these in the finalised reports.
- STECF notes that comprehensive deep sea data has been provided by a number of countries representing a significant new development in the work of SGMOS. STECF

also notes, however, that deep sea and western waters effort data from some countries was either not supplied or was incomplete or inaccurate. Shortfalls were most evident in the data from France and Spain and given the prominence of these countries in the areas covered by both control Regulations, these shortfalls render the aggregate data uncertain.

- STECF notes that, so far, the data available on deep sea species is mainly restricted to landings information. To gain a true perception of removals from these fisheries, catch data are required. In principle observer data should be available since the regulation requires member states to sample these species on board commercial vessels and STECF notes that such data was not provided.

- In view of the repeated experience of late and inconsistent data reports received from some Member States, STECF considers that continuing efforts by the Commission will be required to inform and educate national administrations on the required procedures, timescales and quality of data submissions.

- Given the difficulties created, STECF particularly acknowledges the major contribution made by Hans-Joachim Raetz of the JRC in developing, maintaining and uploading data to the various databases. The incorporation of extensive new data covering deep sea and western waters was a time consuming and demanding task carried out efficiently and in good time for the various SGMOS meetings.

- STECF would like to draw attention to the question of resources being applied to the exercise of compiling and analysing effort and catch data. This involves considerably more work for JRC and Member States' scientists than implied by the time formally scheduled for the meetings. STECF requests that participating experts provide an estimate of the following to illustrate the full resource cost: i) time allocated to this work and ii) extent to which some of the detailed material is actually used and iii) scope for improved procedures.
- STECF strongly recommends that the Commission establish a more permanent basis for the future resourcing and support of existing and future databases holding the effort and catch information and also ensure that the issue of successional planning is adequately addressed. STECF also recommends that more transparent arrangements for access to and use of data are discussed, formally agreed and publicised.

Specific comments Part 3 Deep Sea and Western Waters

- STECF notes that part 3 of the STECF SGMOS report, covering Deep Sea and Western Waters of SGMOS has been finalised. This is the first time an evaluation has been carried out of effort development under the DeepSea and Western Waters regimes.

- STECF notes that a considerable amount of information has been collated covering the Deep Sea Regulation and the Western Waters Regulation but that there is uncertainty over some of the quantitative information from countries with very significant fisheries in these areas.

- STECF considers that the work should be regarded as preliminary at this stage and recommends that the quantitative information on effort and catches should not be taken as a representation of the true situation.

- Notwithstanding the above comments, STECF considers that some general observations made by SGMOS and summarised in its report are useful but would benefit from further scrutiny and comment from deep sea experts. STECF notes that such experts attended the second SGMOS effort meeting in 2009 but owing to the lack of finalised data at that time were mainly involved in more strategic questions (see below).

- STECF notes that discussion of the definition of Deep Sea fisheries is continuing and that the present approach, based mainly on quantities of deep sea species landed, should be regarded as an interim solution.

- STECF observes that good progress was made in the review of Annex I and Annex II species and recommends that the adjustments proposed are incorporated in a future revision of the deep sea regulation (Council Regulation (EC) 2347/2002).

- STECF notes that the report contains a short general discussion on the exploitation and vulnerability of deep sea species which attempts to address TOR 2 c dealing with the question about whether some species should not be exploited. STECF agrees with SGMOS that there are no scientific reasons why these species should not be exploited but also strongly agrees with the subgroup that this should be on the condition that the exploitation rate is sustainable.

Update on STECF SGMOS Effort Management Review SGMOS-10-04

- STECF notes that good progress has been made in the collation of data at the first meeting of the SG effort management group. The majority of countries have supplied effort, catch and spatial effort data as per the data call. Some updates have occurred since the first meeting. Data submissions are still required from Belgium and France and questions remain over the data from Spain. It is hoped that these shortfalls will be rectified in good time for the second meeting.

- In order to support the STECF SGMOS and JRC efforts to secure all the relevant information from these countries in time for the second meeting, STECF considers that a reminder from the Commission may prove helpful.

- STECF encourages the analysis and further development of the deep sea and western waters data and recognises that deep sea expertise will be required to fully exploit the new data resource created. STECF proposes that deep sea experts to be invited to the second effort meeting in 2010 to assist with interpretation of the information collated.

4.2. SGRN 10-01: Evaluation of 2011-2013 National Programmes linked to the Data Collection Framework

STECF is requested to review the report of the **SGRN-10-01** Working Group of June 14 - 19, 2010 (Ispra, Barza) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the SGRN-10-01 Working Group are to be found in Annex II.

STECF comments

STECF notes the tremendous efforts made by MS in compiling their multi-annual NP (2011 – 2013) in accordance with the new Guidelines (SGRN 09-03). STECF notes that MS have mostly complied with the new guidelines. Many issues identified can be addressed in the review of the guidelines scheduled for 2011. In general, the National Programmes (NP) were well laid out, especially the content index. STECF also appreciates that MS provided the NP proposal in English.

STECF shares the working group concern that no progress has been made in developing a clear and digitally-based evaluation process that includes a pre-screening of National Programmes and Technical Reports (TR) (see discussion SGRN 09-01). Specific guidelines on how to evaluate the new NP and TR are needed. STECF notes that SGRN developed proposed guidelines and procedures at the SGRN 10-01 and SGRN 10-02 meetings and recommends that they be formalised and finalised in 2011. STECF stresses the importance of a pre-screening of NP's and TR's to make future meetings as efficient as possible. STECF stresses the need to develop a simple electronic version of the evaluation procedure that can produce the required tables and summary information automatically as achieved by its SGMED WG. STECF considers that this issue should be reviewed as part of the SGRN Strategic discussions in early 2011.

SGRN was asked by STECF (April 2010 Plenary) to address the proposed collection of data under the Marine Strategy Framework Directive (MSFD). STECF notes that data collected under the DCF framework, particularly under the scheme for research surveys at sea (Council Regulation 199/2008), can be used to inform on indicators relating to some of the descriptors in Annex 1 of the MSFD.

STECF would point out that the review of DCF surveys scheduled for October 2010 will address ecosystem indicators, but not specifically in relation to the MSFD.

STECF welcomed the work of SGRN in relation to the Regional Database (RDB) issue and noted the progress made over the last year. STECF notes that the RDB meeting proposed by SGRN 09-04 took place in Brussels in February 2010 and that the various Regional Coordination Meetings (RCM's) have reviewed and commented on this report during their April-May 2010 meetings. STECF notes that the RCM Baltic agreed to use FishFrame as a RDB. The North Sea & Eastern Arctic RCM has agreed to use a disaggregated RDB. The Mediterranean & Black Sea RCM considers that a RDB is not necessary. STECF disagrees with the RCM view and in line with its general support for RDBs, considers that a RDB for the Mediterranean & Black Sea is highly desirable. The Long distance fishery RCM noted that databases are available from ICCAT and other relevant RFMO's. STECF notes that while such databases exist, they are not always readily accessible. STECF supports the proposal for a RDB Steering Group and notes that the first meeting is schedule to take place in late 2010.

STECF notes the large number of DCF-related meetings and deadlines over the first 7 months of 2010. The first 7 months of 2010 were very busy for the DCF community. STECF recommends that meeting scheduling should be optimally spaced during the year to allow for the timely

production of the relevant reports and to allow time for follow-up action by MS and other groups.

STECF recommendations

In order to further explore how data collected under the DCF can assist an ecosystem approach to Fisheries management (EAFM) which falls under the CFP and how such data relate to the implementation of the MSFD, STECF suggests the Commission could include this topic in the STECF work program 2011, preferably in early 2011. Participants of such an STECF working group meeting should consist of a mix of MSFD and DCF experts. STECF suggests the following Terms of Reference for this working group:

(1) to examine the descriptors listed in Annex 1 of the MSFD with their associated indicators and data requirements in relation to data from DCF research vessel surveys.

(2) to consult the Commission Decision on MSFD (published in summer 2011), the MSFD Management and Task Group reports[1] , and the review paper published in Marine Policy in 2010 on the links between the CFP and MSFD[2]

(3) to examine how the current data collected under the DCF could be used to provide information on the indicators for the MSFD descriptors as defined by the MSFD Task Groups . The DCF data sets should be confined to those generated from at sea surveys.

(4) to examine if new data sets could be collected under the DCF and used to provide information on the indicators defined for the MSFD descriptors. The proposed new data sets should be confined to those generated from at sea surveys under the DCF.

STECF considers strategic planning to be a very important element of the SGRN work programme. STECF notes that SGRN meetings are generally devoted to evaluation of National Programmes and review of Technical Reports (now Annual Reports). This is a large workload and leaves little time to deal with strategic issues and planning. As there will be no major review of NP in 2011, STECF recommends that a SGRN working group be convened early in 2011 to discuss strategic issues over the medium to long term (next five years). The issues relate to data deficiencies, revisions to Guidelines for submission of National Programmes and Annual reports; procedures for evaluation of NP and AR, revisions to the DCF; actions required following the review of surveys; the DCF and the Control Regulation; Regional Database issues; DCF Website; DCF Sharepoint. As concerns the DCF and the Control Regulation, there is no co-ordination at the EU level and in many cases not on the MS level either. STECF suggests that the ToRs for this meeting be developed in conjunction with the Commission in late 2010.

1 Task Group 1 Report Biological Diversity - EUR 24337 EN, Task Group 2 Report Non-indigenous Species - EUR 24342 EN, Task Group 3 Report Commercially exploited fish and shellfish - EUR 24316 EN, Task Group 4 Report Food Webs - EUR 24343 EN, Task Group 5 Report Eutrophication - EUR 24338 EN, Task Group 6 Seafloor Integrity - 24334 EN, Task Group 8 Report - Contaminants and Pollution Effects - EUR 24335 EN, Task Group 9 Report - Contaminants in Fish and Other Seafood - EUR 24339 EN, Task Group 10 Report - Marine Litter - EUR 24340 EN, Management Group Report - Scientific Support to the European Commission on the Marine Strategy Framework Directive - EUR 24336 EN

2 Rätz H.J., Doerner H., Scott R. & Barbas T. (2010). Complementary roles of European and national institutions under the Common Fisheries Policy and the Marine Strategy Framework Directive. Marine Policy 34 (5): 1028-1035.

The working group recommends a working group, possibly followed up by a Study on identifying adequate methods for allocating economic data at different disaggregation levels (e.g. metiers). STECF agrees that there are significant difficulties in allocating fishing costs to different métiers when individual vessels operate in multiple métiers during the year or even during one day at sea, and supports this recommendation.

4.3. SGRN 10-02: Evaluation of 2009 technical reports related to the Data Collection Framework

STECF is requested to review the report of the **SGRN-10-02** Working Groups of July 5 - 10, 2010 (Hamburg) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the SGRN-10-02 Working Group are to be found in Annex III.

STECF observations

STECF appreciates that a draft report of the meeting was made available to STECF 4 days after the meeting. Based on the draft report, STECF endorses the recommendations and findings of SGRN 10-02, except for the following:
SGRN remarks that "unpaid labour" is an issue in some Member States and therefore data should be further collected. If a MS notices that unpaid labour does not play any role in its economy, it can ask for derogation in the NP.
STECF does not agree that Member States should be granted a derogation not to sample for unpaid labour in the processing or other sectors. This is because, although unpaid labour may not have existed in the past, it could occur in the future, therefore MS must sample it.

STECF notes that the former term 'Technical Reports' that was related to the DCR is now being replaced by the term 'Annual Reports' in accordance with the DCF Implementation Regulation 665/2008.

STECF welcomes the progress in developing a procedure and template tables for data-user feedback on data availability & quality, as follow-up of the STECF April 2010 Plenary recommendations.

With regard to the review of surveys, STECF notes that the work plan drafted by SGRN 09-04 has been largely followed and that the survey lists compiled by the DCF Regional Co-ordination Meetings (RCMs) are now complete and ready to be forwarded to the Chair of the Survey Review meeting (SGRN 10-03, Brussels, 4-8 Oct 2010).

STECF comments and conclusions

STECF supports the suggestion to allow experts to read DCF Annual Reports before working group meetings in order to make evaluation meetings as efficient as possible and to allow sufficient time for discussing general issues at meetings. STECF recommends that the Commission consider ways in which this could best be achieved including compensating experts for such preparatory work, e.g. by ad-hoc contracts before working group meetings or through the expertise support framework within the DCF.

STECF agrees that the recurring issue of sampling coverage of Long-Distance Fisheries (e.g. CECAF, ICCAT, SPRFMO) needs special attention and recommends that the Commission establishes a forum bringing together data-users (e.g. RFMOs) and data collectors, in order to discuss data needs and possibilities for sampling coverage. STECF notes that first attempts to co-ordinate sampling were made by the DCF Regional Co-ordination Meeting (RCM) on Long-Distance Fisheries (Madrid, 3-5 March 2010).

Considering the data-user feedback tables, STECF supports SGRN's approach to distribute these templates to the appropriate RFMOs and STECF working groups (SGECA on Annual Economic Report, SGMOS on Fishing Effort, etc.), in order to obtain suggestions for further improvement of the templates. STECF re-iterates its April 2010 Plenary recommendation to include the following request in Terms of Reference for all of its Working Group meetings: "Examine all data for consistency and quality. Any discrepancies should be brought to the attention of the relevant responsible authority, Member State and the Commission."

STECF notes that several SGRN 10-02 recommendations are related to a revision of current DCF requirements (e.g. data quality of transversal variables, segmentation based on Full-time Equivalents) and suggests that the implications of changes in DCF requirements are discussed in the appropriate STECF working groups (i.e. SGRN 11-01, SGECA 10-03).

STECF notes that the working group recommended that all MS should collect economic and transversal data regarding the fishing fleet for all fishing vessels in the vessel register during the reference year, instead of only collecting data on vessels in the fleet register on the 1st of January in the relevant reference year. The working group also proposed these follow up activities: Member States to respect these recommendations. SGRN and SGECA to monitor the progress. STECF supports this recommendation, but goes further and recommends that the DCF regulation should be changed to state that the population of vessels must include all vessels included on the vessel register at any time during the reference year. As it stands, the DCF regulation states that the population of vessels is those on the vessel register on 1st January in the reference year. This current definition of the population is weak as it excludes the activity of all vessels which joined the fleet after 1st January in the reference year.

Independent of the work done by SGRN Working Groups, in relation to data submission of Member States in response to calls for data through the DCF, STECF notes that:

- Data submissions in response to DCF data calls represent an official national statement.
- Official national statements need to be qualitatively and quantitatively accurate and the responsibility lies with the Member State.
- Accuracy of the data should be confirmed by the Member State before the data are submitted.
- Member States are advised to aggregate the data as defined in the data call within the specified time period. Any clarification on the requested aggregation can always be obtained from the Commission through the specified contact persons specified in the data call.
- Member States are advised to develop data quality checking tools and to apply such tools before the data are submitted.
- Only quality checked data should be submitted via the data uploading tools.

4.4. SG-RST 10-02: Review of scientific advice on North Sea stocks and fisheries, on North Western waters stocks and fisheries, on South Western waters stocks and fisheries, on deep sea stocks, on widely distributed stocks

STECF is requested to review the report of the **SGRST-10-02** Working Group of July 5 - 9, 2010 (Lyngby) meeting, evaluate the findings and make any appropriate comments and recommendations.

The terms of reference for the SGRST-10-02 Working Group are to be found in Annex III.

When discussing the content and the endorsement of the SG-RST 10-02 report, the STECF will be asked

- to take into account the following rules matching with the MSY transitional period, as suggested by the Commission following its communication on fishing possibilities:
  - **2010:** F sq
  - **2011:** 0,8 F_{sq} + 0,2 F_{MSY}
  - **2012:** 0,6 F_{sq} + 0,4 F_{MSY}
  - **2013:** 0,4 F_{sq} + 0,6 F_{MSY}
  - **2014:** 0,2 F_{sq} + 0,8 F_{MSY}
  - **2015:** F_{MSY}
- to give its opinion, when appropriate, on the management option among those assessed:
  - ICES MSY approach,
  - Commission MSY transitional approach,
  - precautionary approach,
  - HCRs established in multiannual plans,
  - HCRs established in the Commission communication,

  which would appear as the most precautionary in regards to the objectives expressed by the Commission to reach the F_{MSY} for exploited stocks in 2015.
- to sum up the information made available in advice into spreadsheets which have been suggested and submitted by the DG Mare.

STECF Response

STECF reviewed and adopted the report drafted by the STECF-SGRST (10-02) WG held in Lyngby, Denmark from 5-9 July 2010. This report was updated with STECF comments and recommendations and endorsed by the Committee and is published as the STECF "*Review of scientific advice for 2011 Part 2: Advice on Stocks of Interest to the European Community in the North Sea Celtic and Irish Seas, West of Scotland, West of Ireland, south western waters, Icelandic and North Sea, Celtic and Irish Seas, West of Scotland, West of Ireland, south western waters, Iceland and East Greenland, Barents Sea and the Norwegian Sea, Faeroe plateau ecosystem, Black sea and widely distributed and migratory stocks, deep sea stocks and Elasmobranch Resources in the North East Atlantic*".

The information presented in the review supersedes that which was published in the Consolidated Review of advice for 2010 for stocks of Community Interest. For some stocks the

advice will be updated in October 2010 and published in the STECF Consolidated review of advice for 2011, which will be available in November 2010.

The STECF review of advice for 2011 Part 1, included the latest assessments and advice for stocks in the Baltic sea and was publishes in June 2010. Part 3 will contain inforrmation of other stocks of interest to the European Community and will be published in November 2010. Parts 1 2 and 3 will also be amalgamated and published as the Consolidated STECF Review of advice for 2011 in November 2010.

In undertaking the review, STECF has consulted the most recent reports on stock assessments and advice from ICES and has attempted to summarise them in a common format.

Format of the STECF Review of advice

For each stock, a summary of the following information is provided:

STOCK: [Species name, scientific name], [management area]

FISHERIES: fleets prosecuting the stock, management body in charge, economic importance in relation to other fisheries, historical development of the fishery, potential of the stock in relation to reference points or historical catches, current catch (EU fleets' total), any other pertinent information.

SOURCE OF MANAGEMENT ADVICE: reference to the management advisory body.

MANAGEMENT AGREEMENT: where these exist.

REFERENCE POINTS: where these have been proposed.

STOCK STATUS: Reference points, current stock status in relation to these. STECF has included precautionary reference point wherever these are available. The stock status is summarised in a "traffic light" table utilising four separate symbols to indicate status in relation to different reference points. The key to the symbols is as follows:

- indicates an undesirable situation e.g. F is above the relevant reference point or SSB is below the relevant reference point

- indicates a desirable situation e.g. F is below the relevant reference point or SSB is above the relevant reference point

- indicates that the status is unknown e.g the reference point is undefined or unknown, or F or SSB is unknown relative to a defined reference point

- indicates that status lies between the precautionary (pa) and limit (lim) reference points

RECENT MANAGEMENT ADVICE: summary of most recent advice.

STECF COMMENTS: The classification and associated TAC derived using the rules prescribed in the European Commission's Policy Statement on Fishing Opportunities for 2011 (COM(2010) 241 FINAL). Any comments STECF thinks worthy of mention, including errors, omissions or disagreement with assessments or advice.

Acknowledgement

The STECF review of scientific advice for 2011 Part 2 was drafted by the STECF Sub-groups on Resource Status (STECF-SGRST 10-02) held in Lyngby, Denmark from 5-9 July 2010. STECF acknowledges the extensive contribution made by the following participants:

Participants SGRST 09-02 meeting in Lyngby, Denmark, 5-9 July 2010:

STECF members
Casey, John (Chair)
Kirkegaard, Eskild
Vanhee, Willy

Invited experts:
Bertignac, Michel
Egan, Afra
Holmes, Steven
Keatinge, Michael
Kupschus, Sven
Munch-Petersen, Sten

Observers
Park, Michael – Scottish White Fish Producers Organisation (SWFPA)

JRC expert
Druon, Jean-Noel

STECF Secretariat
Druon, Jean-Noel

5. ADDITIONAL REQUESTS SUBMITTED TO THE STECF PLENARY BY THE COMMISSION

5.1. General issues - Request for a STECF opinion on possible social indicators to be used in the context of evaluation and/or assessment of multiannual plans

Background

With the adoption of Regulation (EC) No 2371/2002, the social dimension has become an integral part of the Common Fisheries Policy. The Lisbon strategy has reinforced the social dimension of fisheries and requires the identification of social objectives that are suited to the field of fisheries.

In addition, the Code of Conduct published by the FAO in 1995 – in particular its sections 6.16 to 6.19 – has introduced a series of recommendations related to social and socio-economic aspects to be taken into account in the fisheries management framework.

The evaluation and the assessment of multi-annual plans will inevitably need to take into account such a social dimension. Therefore, social and socio+-economic indicators will have to be build and discussed.

Aiming to a similar result, a series of indicators has been used in the context of the impact assessment exercise launched in relation to the reform of the Common Fisheries Policy.

Terms of Reference

The STECF is requested to discuss the set of indicators related to the social and economic field and made available in the context of the CFP reform.

The STECF is asked to deliver an opinion about the usefulness and the suitability of this set of indicators when making doable the evaluation and/or the assessment of management strategies and management options laid down in multiannual plans against social objectives expressed as general principles in the treaty establishing the European Union or in the CFP basic regulation or as specific principles expressed in the Code of Conduct published by the FAO.

STECF comments

STECF notes that the social indicators mentioned in the context of the CFP reform (employment, dependency, social sustainability, attractiveness and safety) are all relevant to consider in relation to evaluation and/or assessment of management strategies. STECF also notes that these social indicators are in line with a range of the general principles mentioned in the treaty establishing the European Union or in the CFP basic regulation or as specific principles expressed in the Code of Conduct published by the FAO.

A range of possible social indicators was proposed in the final report SGECA-SGRST-06-05.

The STECF discussed the possible need to complete the list of social indicators established by the economic unit of DGMARE in the context of the impact assessment of the CFP reform, with additional qualitative descriptors and metrics that could be used in the evaluation of multiannual fisheries management plans. Noting that the information required is not necessarily collected under existing data collection schemes, STECF suggests that the RACs be invited to take an active role in providing the additional information required.

Those descriptors would cover the following fields:

- Dependency of local communities on the fishery
- Manpower dynamics of the fishery, e.g age and turnover of actors in the industry
- Governance and awareness
- Acceptability of the multi-annual management plan
- Compliance with the provisions of the multi-annual management plan

The descriptors need to be defined in more detail and appropriate indicators need to be identified. The STECF recommends that this work undertaken through a specific ad hoc contract.

5.2. General issues - Request of a STECF opinion on possible alternatives for technical conservation measures to be applied in the West of Scotland

Background

In 2008 scientific advice called for zero catch of cod, haddock and whiting in an area West of Scotland, which is an area of particular importance for the Scottish fleet. We have received this advice for some years in succession for cod and for whiting but the fishery was not closed because there was non-zero advice for haddock. Given a zero-catch advice for all three species that are caught together, the Commission proposed to closed targeted fisheries for whitefish in this area under the 2009 fishing opportunities regulation.

The UK, with support from Ireland, did not accept a full closure of the whitefish fisheries in this area. After an extended discussion, the agreement was reached that technical conservation improvements be put in place straight away with the aim to increase the selectivity of gears used in other fisheries (Norway lobster, anglerfish and megrims) so that whitefish by-catches are reduced. These measures were adopted in Annex III of the fishing opportunities regulation 2009. Since the entry into force of the Lisbon Treaty, this annex had to be eliminated from the regulation. The annex is now included in Council Regulation (EC) No 1288/2009 on transitional technical measures, that was adopted in the 2009 November Council.

The UK and Ireland opposed to this regulation, although it was largely based on their proposal, on the argument that the package makes the haddock fishery economically unfeasible, the main grounds being:

- They prevented the catching of haddock
- Some ancillary, local fisheries were unintentionally affected (for squid, crawfish)
- Larger mesh sizes allowed megrims to become stuck in the nets, which means the fish became bruised and lowered their market price
- Inshore *Nephrops* fishers wanted to retain an earlier design of net, with a smaller square-mesh panel.

It is important to point out that in the report sent on April 2010 as regards reporting obligations on catches and discards by vessels catching whitefish in ICES Via (attached herewith), the uptake for the lowered haddock quota was unaffected.

Also, in the last ICES advice, it does not seem that there has been any reduction in discarding of haddock despite the new technical measures introduced in 2009

After some meetings with the Scottish authorities, they have forwarded to the Commission an alternative proposal to adjust the measures in place to take account of the reality of the particular fisheries in the area, while maintaining, or even improving conservation objectives.

Terms of Reference

1. Towed gear currently used in whitefish fisheries of the West of Scotland is characterized by a mesh size of 120 mm cod end with a 120 mm squared mesh panel. The UK authorities suggest, in order to avoid meshing and to improve the quality and first sale value of catch of megrims, a change of gear to mesh size of 110 mm equipped with a squared mesh panel of 120 mm with the conditions currently permitted in the North Sea under Article 4(5) of Regulation 2056/2001.
    - In the light of data submitted by the UK authorities, the STECF is requested to assess possible changes in catch compositions possibly induced by such a change in fishing gears used in the West of Scotland.
    - In particular, STECF is requested to assess if the following catch composition (more than 70 % of any mixture of the target species included in the longer list of such target species for mesh size range 80 to 90 mm specified in Annex I to Regulation (EC) 850/98, and no more than 25 % of whitefish, including no more than 5 % of cod in the catches) could be ensured when using this new towed gear.
2. The UK authorities would like to be granted with derogations:
    a) to use a square mesh window of at least two metres in length for vessels of less than 112 kW using towed nets (Article 7(2)b of Regulation (EC) No 850/98). This claim is based on the fact that such vessels target *Nephrops* having very low levels of whitefish catches and it is supported on the data provided.
    b) To use tangle nets within the French line (coastal fisheries) to target crawfish by for upwards of 40 vessels, the majority of which are under 10 metres length. The reasons for this derogation are also based on the low levels of catches of whitefish and supported by the data provided.
    - In the light of available information, particularly on catch composition, the STECF is requested to give its opinion about these possible derogations to Technical Conservation Measures which aim to limit catch of whitefish like cod and haddock.
    - If information made available on catch composition and if it appears that such derogations would not have impact on the dynamic of whitefish stocks, the STECF will be asked to suggest areas where these derogations may be applied in the West of Scotland to match with distribution of *Nephrops*.
3. The UK pointed out that the current 30% limit on catch compositions covering cod, haddock and whiting is difficult to achieve by their fleet due to the spawning season on haddock during March-May. The propose to lift the catch composition for haddock at a given time of the year if the haddock quota uptake is below normal levels, in the following terms:

    When catches of haddock in the West of Scotland would represent less than 50 % of the quota by beginning of September, UK vessels equipped with Scottish seines of mesh sizes of 110 mm would have to comply with no more than 20 % of Cod and Whiting, including no more than 5 % of cod in the catches. Catches of haddock would nevertheless remain limited by the quota.

Such a new rule would have a direct impact on the distribution of the fishing pressure deployed on haddock over the year, by concentrating the main part of the catches during the last quarter of the year.

- The STECF is requested to advice on the possible impact on the dynamic of the West of Scotland haddock stock if such a modification, which would imply fishing activity mainly oriented on Haddock during the last quarter of the year, was to be agreed.

4. The UK authorities asked for an evaluation of the current definition of the so called "French Line" established in the West of Scotland to distinguish between whitefish fisheries on the shelf and deep sea fisheries upon the slope. The current position of the "French Line" could not match with the distribution of whitefish species likes cod, whiting and haddock and associated species like megrims and anglerfish.

    - The STECF is requested to give its opinion on the position of the "French Line" in the light of information available on the distribution of whitefish species and associated species (cod, whiting, haddock, megrims and anglerfish).

STECF response

General

STECF notes that the UK proposal of a set of alternative measures – intended to be as effective as the EU measures for protecting cod, haddock and whiting but more appropriate for Scottish fishing practices – could be viewed as an example of the shift towards adaptive results-based management. The 2009 Green Paper on the CFP Reform suggests that in such management approaches, the general framework for fisheries policy would be set on the basis of a Commission proposal, but detailed implementation decisions could be taken at a regional level through a process of stakeholder interaction and the development by the industry of fisheries plans. An important principle of such approaches is the evaluation of the effects of such measures following implementation, and adequate monitoring is required to ensure any new measures have the desired effect so that the new measures can be discontinued in case its impact is negative.

STECF notes that the UK request to the Commission forwarded to STECF was not accompanied by supporting data. Therefore, STECF here suggests the type of data required for the evaluation of the ToRs.

STECF response

ToR 1.

For STECF to be able to assess this, ideally, data should be submitted from a gear trial experiment in which both gears (the one used according to the current regulation and the one to be used according to the UK proposal) are directly compared in the area concerned (in a simultaneous gear trial setup).

If such experimental data are not available, the following should be submitted:

i representative data on the catch (landings and discards) compositions, by species and length class, of the current gear in the area concerned;

ii selectivity parameters of the current gear for cod, haddock, and whiting;
iii selectivity parameters of the proposed gear for cod, haddock, and whiting.

Such information could then be used to first reconstruct, from (i) and (ii), a 'virtual stock composition' (by species and length class), which can then be applied to (iii) to arrive at a likely catch composition of the proposed gear.

The second question requires data and parameters not only on whitefish but also on the (other) target species ('the target species included in the longer list of such target species for mesh size range 80 to 90 mm specified in Annex I to Regulation (EC) 850/98'). STECF notes that it is unlikely that selectivity parameters for such a range of species will be available. Nevertheless, STECF is reasonably confident that the question can be adequately addressed if selectivity parameters are provided at least for the main target species.

It should be noted that, since catch compositions not only depend on gear selectivity parameters but also on the relative abundances and age compositions of the stocks, future catch compositions cannot be predicted without knowledge of the future state of the stocks. The likely catch compositions that STECF would calculate through the procedure above, is valid only under the assumption of 'all else being equal'. This implies that STECF will not be able *a priori* to 'ensure' (as requested in the second question of the ToR) anything with regards to catch composition. Therefore STECF recommends that if such a measure is agreed, there is adequate monitoring and evaluation to determine whether unintended consequences arise through changes in catch composition.

STECF notes that catch composition data of the two gears from two different periods and/or two different areas cannot be used to address this request, because the underlying relative states of the constituent stocks are unlikely to have remained constant.

ToR 2

For STECF to be able assess whether granting of the proposed derogations would negatively affect whitefish stocks, and to evaluate to which areas the derogations may be applied, the following data would in each case be required.

i Number of vessels concerned;
ii Total effort involved;
iii Spatial information of the fishing activities of the fleets concerned;
iv Recent data on the absolute levels of total landings of cod, haddock, and whiting (presented separately by species) by the vessels concerned when using the 2m or the 3m SMP and tangle nets respectively in the area concerned (time series of 3 or more years);
v Recent and representative observer data on discards of cod, haddock, and whiting (presented separately by species) by the fleets concerned when using the 2m or the 3m SMP and tangle nets respectively in the area concerned.
vi Selectivity parameters of the 2m and the 3m SMP for cod, haddock, and whiting.

ToR 3

STECF notes that if the proposed rule is implemented and assuming that the TAC restrict catches and not just landings, the fishing mortality on haddock will be concentrated in the latter part of the year. This would reduce fishing mortality on spawning haddock in spring, which may be seen as a positive consequence of the proposed rule.

The impact on the stock dynamics depends, among other things, on the season in which most haddock reach the size at first capture. If a large fraction of a particular age class recruits to the fishery in the last part of the year, then this age class would be subject to additional fishing mortality under the proposed rule, which constitutes a detrimental impact on the stock dynamics. On the other hand, if recruitment of a new age class to the fishery does not occur mainly in the last quarter, the proposed rule could have a positive impact on the stock dynamics because fish in the catch would on average be larger, implying that fewer numbers would be caught under a given TAC.

Therefore, to assess this question, STECF needs data on the age composition of the haddock catches (landings and discards separately) by the relevant fleet per season, e.g. monthly or quarterly.

Another issue might be that the proposed rule leads to increased discarding of haddock before September, and/or increased discarding of cod and whiting before and/or after September. In order to evaluate this, STECF needs discards data on haddock, whiting, and cod per season, e.g. per month or per quarter. Moreover, the Member State should, if their request were to be granted, collect such observer data in the future, so that an effect of the new rule on discarding behaviour can be assessed, so that the new rule can be discontinued if its impact is negative.

ToR 4

STECF considered the location of the French Line in relation to the depth profile (see Figure). It roughly coincides with the 200m depth contour, although at some points it crosses the 300m depth contour and approaches the 400m depth contour.

To evaluate the position of the French Line, information on the spatial and bathymetric distribution of cod, haddock, whiting, megrims, and anglerfish as well as on the fishing activity and catches relative to the French Line is required. Both fishery-independent survey data and commercial catch (including discards) data of high spatial resolution would be helpful. Information on landings or catches linked to VMS would be particularly informative. Commercial data may be obtained from one or both relevant Member States (the UK and France). Note that bathymetric distribution data alone are not sufficient because the bathymetric distribution of the species concerned may vary by latitude; therefore bathymetric data need to be combined with geographic position data.

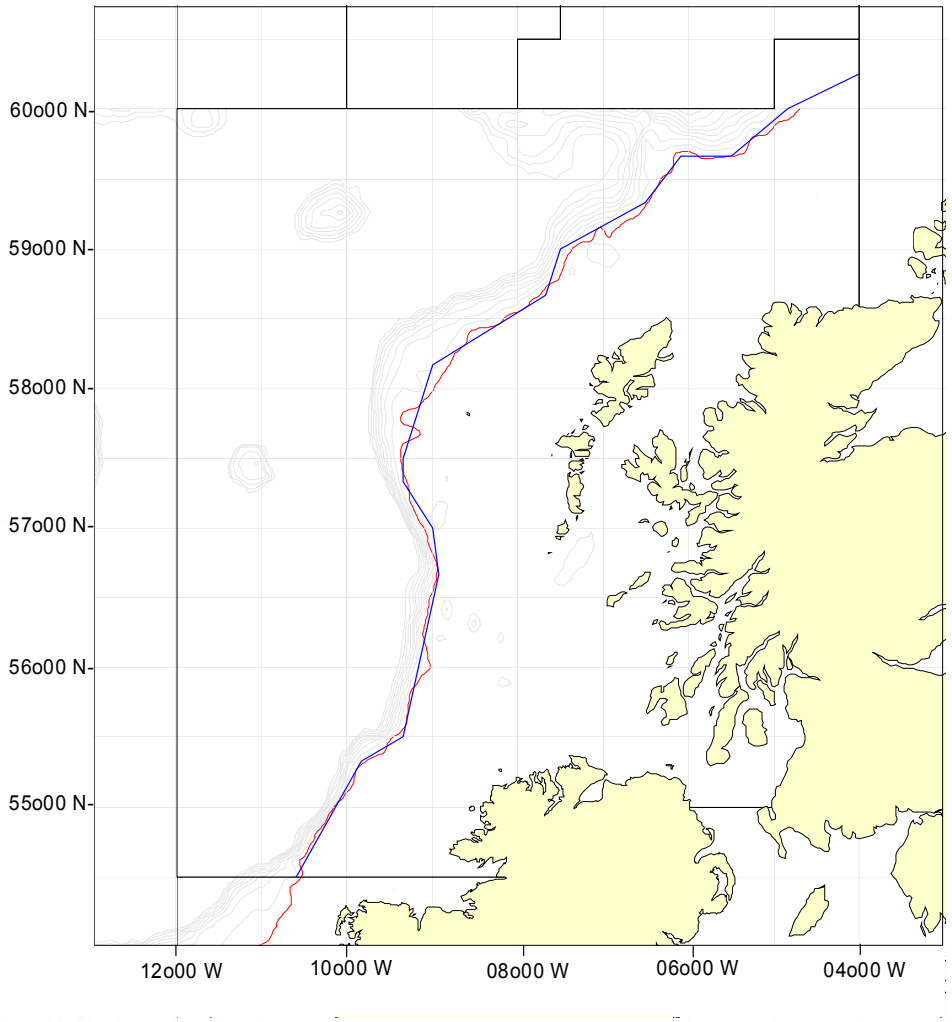


Figure 5.2.1: The French Line West of Scotland in blue (page 151 COUNCIL REGULATION (EC) No 43/2009) and the 200m depth contour in red. Grey depth contours are at 100m intervals.

5.3. General issues -Request for a STECF opinion on the impact of certain management decisions addressing uncertainties in category 11 stocks of the Commission Communication COM(2010) 241 Final

Background

Each year the STECF is requested to review the most recent advice on stocks of interest to the European Union and provide appropriate comments and recommendations. In undertaking the review, the STECF summarises the relevant scientific information after consulting recent reports on stock assessments and advice from scientific advisory

bodies of reference and other readily available literature. For some stocks the review remains unchanged as no new information on the status or advice for such stocks became available. These are classified by the Commission, in its annual Communication3 on fishing opportunities, as category 11 stocks meaning that the STECF was not able to provide advice and therefore TACs should be adjusted towards recent catch levels within a 15% decrease or otherwise the Member States should commit themselves to substantiate a TAC by providing reliable scientific advice within a short time.

In its request for advice concerning the implementation of categories 6 to 9 (Annex IV to the aforementioned Communication) the Commission considered approaches to TAC-fixing based on indicators of overfishing and trends in abundance that could be inferred from surveys by STECF. The present document addresses in greater depth possible methods for TAC-fixing in situations where such information are not available (Category 11, and the situation described in Rule 4 of Annex IV when no representative data exist).

During the last negotiations on TACs and Quotas for 2010 (in December 2009) the Council and the Commission recognized that scientific advice for a number of stocks is unknown due to insufficient data to assess their status and that work should continue in 2010 to address this management shortcoming. The Commission presented in April 2010 a non-paper to the Member States summarising the main shortcomings characterising category 11 stocks as well as exploring options to overcome these weaknesses through improved data collection and proposing a decision tree guiding managers in cases of scientific uncertainties.

Terms of References

Based on the Commission's non-paper on *"Management Decisions Addressing Uncertainties in Category 11 Stocks"* and on any other relevant information available, the STECF is requested to:

- Advise on whether the main shortcomings identified by the Commission in the above-mentioned non-paper correspond to the real problems scientists face when assessing category 11 stocks.
- Advise on whether it is appropriate (i.e. from a biological and economic point of view) to establish a list of priority stocks for which data should be improved. In particular, whether it is appropriate to enlarge the current data collection requirements of Appendix VII of Commission Decision 2008/949/EC to certain stocks.
- Advise on whether the decision tree presented in the Commission's non-paper represents a more precautionary approach, in relation to the risk of a reduced reproductive capacity, compared with the current TAC reduction towards recent real catch levels limiting changes to 15% per year.
- Advise on whether the steps taken in the decision tree as well as the TAC changes are acceptable for sustainable fishing and what improvements could be envisaged.
- Identify short-term actions Member States could undertake to improve the information made available to the scientists on stocks classified as category 11.

3 Communication from the Commission: Consultation on Fishing Opportunities for 2011. COM(2010) 241 final.

STECF comments

STECF notes that the shortcomings identified by the Commission in table 1 in the Commission's non-paper on *"Management Decisions Addressing Uncertainties in Category 11 Stocks"* mainly relate to insufficient data and information and considers that the table gives a good overview over the direct reasons for ICES and STECF not being able to assess the state of the stocks concerned. However, the identified shortcomings do not address why the data and information are not available. STECF believes that the main reasons can be found in the human and financial resources allocated to data collection and stock assessment and the priority given to category 11 stocks.

In general Member States give low priority to stocks which are of little economic importance to their fishing sector. Catches of 18 out of the 49 stocks classified by STECF as category 11 stock at the July 2010 plenum (including Baltic Sea stocks) were low or very low in 2009. This indicates that these stocks are of little importance from an economic point of view. It is therefore unrealistic to expect that priority will be given to collect data and perform assessment of these stocks. For some of the stocks the resources required to obtain the information and conduct the assessment may be of the same order of magnitude as the value of the catches. STECF underlines that the above consideration on the importance of these stocks are based on the economic value of the landings only and do not take account for the role of the stocks in the ecosystem.

Of the remaining 31 stocks 15 are belonging to the deep sea stock group dealt with by ICES Working Group on the Biology and Assessment of Deep Sea Fisheries Resources and 11 are addressed by ICES Working Group on Assessment of New MoU Species or by the ICES/HELCOM Workshop on Flatfish in the Baltic Sea. For these stocks initiatives have been taken to improve the assessment of the state of the stocks and STECF considers that while it is important to base further actions to improve the assessment on the recommendations put forward by these groups progress may be more dependent on availability and wiliness of scientist to evaluate existing information than on collecting new information. Even though the information may not be sufficient to support an analytical assessment it may for many of the stocks be possible to to conduct a quality analyse of trends in stock size and exploitation level. STECF therefore underlines that enlarging the data collection requirements of Appendix VII of Commission Decision 2008/949/EC to any of these stocks may not necessarily in its self improve the quality of the assessments .STECF advises that any enlargement of the data collection be based on an analysis of what is required and possible to enhance the stock assessments and on the priority given to the stock taken into account economic as well as biological criteria.

STECF considers that for the stocks not included in any of the above mentioned groups the first step to possible improve the assessment of the stocks would be to conduct an evaluation of what information would be required to allow STECF to assess the state of the stocks and whether and how the information could be collected. Based on the evaluation, a list of priority initiatives to be taken, including the possible enlargement of the data collection could be established.

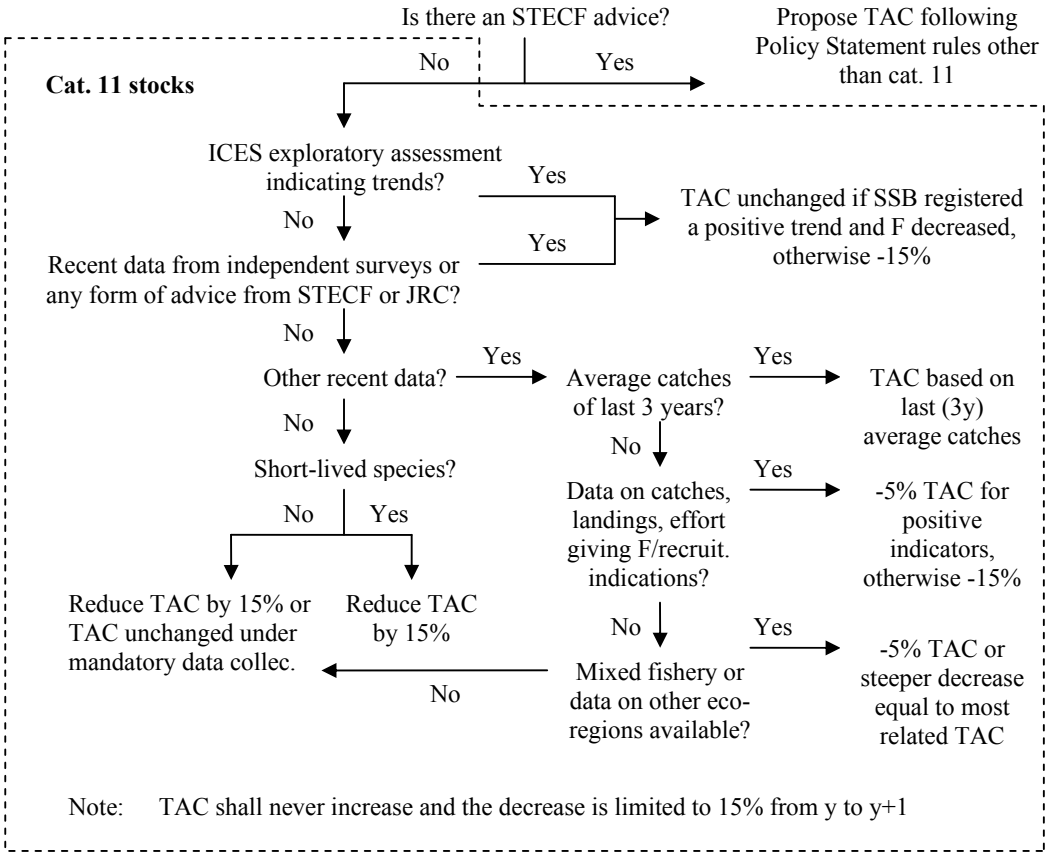


Figure 5.3.1: Decision tree addressing uncertainties in category 11 stocks.

The decision tree designed to guide decision-makers on the choice of fishing opportunities presented in Non-paper to the Committee for Fisheries and Aquaculture "Management decisions addressing uncertainties in category 11 stocks" is shown in the above figure.

STECF notes that one of the principles behind the decision tree is that the TAC shall never increase. This means that the decision tree represents a more precautionary approach, in relation to the risk of a reduced reproductive capacity, compared with the current harvest control rule for category 11 stocks laid down in COM(2010)241 final. The present rule is based on an adjustment of the TAC towards recent real catch levels and allows for an increase in the TAC.

STECF furthermore notes that the principles that the TAC shall never increase may be an incentive for giving priority to improve the assessment of category 11 stocks and thereby get them out of the category.

STECF is not in the position to advise on whether the steps taken in the decision tree as well as the TAC changes are acceptable for sustainable fishing. Such an advice would require evaluation of the possible impact of setting the TACs on the basis of the decision tree on the stocks and fisheries concerned. Such an evaluation will not be possible for category 11 stocks. However, STECF would welcome guidelines in form of decision trees when asked to provide

advice on fishing opportunities in accordance with the Commissions "Policy Paper" (COM (2010)241).

In relation to possible short term actions Member States could undertake to improve the information made available to the scientists on stocks classified as category 11 STECF considers that as explained above priority should be given to the stocks concerned in the national research work plans and the necessary human resources be allocated to the work.

5.4. Mediterranean Sea and Black Sea - Assessment of management plan for bottom trawls fisheries submitted by Cyprus

Background

According to Council Regulation (EC) No 1967/2006 (art.19), Member States are expected to adopt National management plans for fisheries conducted by trawl nets (demersal and pelagic), boats seines, shore seines, surrounding nets and dredges (for molluscs) within their territorial waters. So far, some draft plans have been notified to the Commission for it to present its observation before the plan is adopted by Member States. This was also the case for Cyprus proposal for a management plan submitted to the Commission in 2007 and evaluated by STECF plenary in April 2008 (PLEN-08-01).

Taking into account the observations on this first CY proposal, STECF concluded that the proposed management plan submitted by Cyprus does not fully meet the requirements of Article 6 of the Council Regulation (EC) No 2371/2002 including conservation reference points such as targets against which the recovery to or the maintenance of stocks within safe biological limits for fisheries exploiting stocks at/or within safe biological limits (e.g. population size and/or long-term yields and/or fishing mortality rate and/or stability of catches).

Cyprus has submitted a revised proposal for a management plan taking into account STECF comments (PLEN-08-01). The management plan shall be drawn up on the basis of the precautionary approach.

The revised proposal objectives are:

- the adjustment of the fishing effort of the bottom trawl fishery to the status of the stocks, taking into account the multispecies character of the fishery and its interactions with other fisheries exploiting the same resources (ie. small scale inshore fishery).

- the protection of the juvenile fish and

- the economic viability of the fishery taking into account the increase of selectivity of the trawl nets from June 2010, as well of the set nets of the small scale inshore fishery in the near future to 36mm.

- the request for a derogation concerning the minimum distance from the coast for bottom trawl nets, according to Article 13.11 of the Mediterranean Regulation, due to geographical constraints.

Terms of References

STECF is requested to review the current proposal for a management plan, to evaluate its findings, to make appropriate comments, also with respect to the elements/measures included in the management plan and to advise whether the plan contains elements that account for the state of the exploited resources, if concerned fisheries are expected to exploit main target stocks in line with their production potentials and if the plan is expected to maintain or to revert fisheries productivity to higher levels and in which time frame.

STECF observations

The Cyprus Management Plan aims at the sustainable exploitation of several demersal stocks (mainly *Mullus barbatus, Mullus surmulletus, Boops boops, Pagellus erythrinus* and *Spicara smaris*) and to support derogation from the provisions of Reg. (EC) 1967/2006 in accordance to paragraph 11 of article 13 in relation to the minimum distances and depths. The current legislation states that trawling is prohibited within 3 miles from the coast or within the 50 metres isobath where that depth is reached at a shorter distance from the coast. The present management plan provides specific information in support of the request to allow fishing operations as close as 0.7 miles to the coast at depths greater than 50 meters. The continental shelf is very narrow in Cyprus and most of the times the 50 m isobath is only a short distance from the coast.

STECF notes that the new Cyprus Management Plan is supported by more detailed scientific information relating to the status of the main target stocks and includes conservation reference points. There is a fairly good description of the fisheries, biological parameters of target species, seasonal changes in activity, catches, discards, estimates of biomass at sea and fishing effort allocation by area. Furthermore, the Management Plan includes data describing the likely economic and social impacts of non-acceptance of the derogation.

STECF general comments on the Cyprus Management Plan

The management plan provides evidence for supporting the request for a derogation under the provisions of article 13, paragraph 2 of Council Regulation (EC) 1967/2006relating to bottom trawl gears.

The plan provides information on discards of the most important demersal species showing that they are generally negligible and are linked to the fishing pattern arising from the depths fished and seasonal closures. Operating at depths deeper than 50 m, the catch of juveniles of most of the important resources in the area is very low and the extended seasonal closure during the main period of annual recruitment for most species (summer-early autumn) also contributes to the observed low incidence of small sized individuals in the catch.

At the present time, only 4 trawlers operate in coastal waters and 4 additional vessels are allowed to operate exclusively in international waters. Also, according to the requirements of the

new Mediterranean Regulation (Reg. (EC) 1967/2006), the trawl net (40-mm diamond) will be replaced by a square mesh of 40 mm, or at a duly justified request, by a diamond meshed net of 50 mm, in the forthcoming fishing period commencing in November 2010.

Reference points and stock assessment

The management plan for trawling targeting demersal resources provides useful information regarding catch, effort, discards and it sets an *F*-based reference point for the sustainable exploitation of the 5 main target species (*Mullus barbatus, M. surmuletus, Boops boops, Spicara smaris, Pagellus erythrinus*) as well as estimates of stock status in 2008 for the first 3 of the above species.

STECF notes that assessment and stock status is presented for only three of the 5 main target species exploited by the trawl fishery for which derogation is being sought. STECF considers that with the data and information available, the approaches used for these stock assessment and the derived reference points are sufficient to comment on the exploitation levels relative to the Fmsy proxy (F0.1).

Trends in total landings and catch rates are also provided in support of the Plan. Both time series suggests a declining trend in the stock in more recent years. STECF is unable determine the reasons for the observed decline. It may be representative of a real decline in the resources, but it may also have arisen as a result of the implementation of the Mediterranean Regulation which prevented access to inshore fishing grounds where traditionally, catch rates were higher.

Through the enforcement of the proposed management plan, managers expect a further reduction of fishing pressure and an enhancement of stock status of all species exploited by the trawl fleet. Management measures include the reduction of the number of vessels, the persistence of the seasonal fishing closure from 1st of June to 7th November (that mainly protects juveniles and reduces overall fishing pressure), and the adoption of an increased mesh size. A further reduction in the bottom trawl fleet operating in the territorial waters of Cyprus, even though it numbers only 4 vessels, is a priority for the Government within the Operational Program for Fisheries 2007 – 2013.

Socio-economic impact

STECF notes that in relation to the socio-economic impacts of the requested derogation, the plan indicates that in 2009, when fishing was restricted to waters beyond 1.5 miles from the coast, catches decreased dramatically, especially for the main target species, the picarel, which decreased by 40% compared to 2008. The report suggests that landings have been reduced in line with the area of fishing grounds lost through the regulations currently in force. STECF has no means to confirm or refute this.

STECF conclusions

STECF reviewed the new version of the Management Plan (first submission was examined by STECF in 2008 (PLEN-08-01, Hamburg meeting) and concluded that even though this revised submission supplies additional information useful for assessing the current status of the stocks and sustainability of the fishery, it is not sufficient for STECF to assess the likely impacts of the proposed derogation to permit trawlers to fish within 3 miles of the coast. Without an

assessment of the overall impact of four vessels on resources and habitats STECF is unable to assess the likely consequences of a reduction in the number of trawlers.

STECF therefore concludes that the information available is insufficient to determine the likely impacts of the management plan. STECF recognizes that there is unlikely to be any additional quantitative information that would allow STECF to better advise on the likely impacts of the proposed management plan.

STECF suggests if the derogation is granted, appropriate data and information should be collected to monitor and assess the future impacts of the fishery on the exploited resources and habitat. Consequences and trade-offs for both the trawler fishery as well as for the small scale fishery with passive gears should be demonstrated.

5.5. Atlantic Waters - Request for a STECF opinion regarding the management of stocks of Undulate ray in the Celtic Sea and in the Bay of Biscay

Background

The advice issued by ICES regarding the conservation and management of this species dates from 2008 and should be reviewed this year. In its advice, which STECF confirmed, ICES indicates that the state of conservation of the undulate ray in the Celtic Sea is "uncertain but with cause for concern". It recommends avoiding targeted fishing for this species.

Both France (regarding the stock in the Celtic Sea) and Portugal (regarding the stock in the Bay of Biscay and Iberian Waters) contest the grounds on which the fishing opportunities regulation stipulates the ban on landings of this species and the concomitant obligation to immediately release back to sea any individuals caught.

The Commission will request ICES to examine and present, to the extent possible in light of the scientific information available, the state of the stocks of this species specifically in the two areas subject to the reservations just mentioned. In the meantime, however, STECF is requested to provide clarifications as to appropriate management measures for the fisheries targeting or harvesting this species as by-catch. The first step is therefore to identify these fisheries appropriately.

Terms of References

STECF is requested to describe the fisheries currently taking place in the Celtic Sea and in the Bay of Biscay and Atlantic-Iberian waters, and to identify :

a) those fisheries that target undulate ray and that should, according to previous STECF advice, be closed;

b) other fisheries that harvest this species as part of a mixed catch.

Concerning the fisheries identified in the second indent, STECF is invited to advise on appropriate measures relevant to the conservation of undulate ray, including (but not limited to) a prohibition on landings, closed areas and seasons, or restrictions on the structure of fishing gear deployed.

In answering this request STECF is asked to base its description of fisheries as far as possible on area fished, vessel size, and fishing gear deployed, and to use the gear definitions already in use in Community legislation.

Description of undulate ray fisheries in the Celtic Sea, Bay of Biscay and Atlantic-Iberian waters

Since 2009, landings of undulate ray (*Raja undulata*) have been banned in Sub-areas VI, VII, VIII, IX and X with the additional obligation to immediately release any individuals caught ('prohibited species'). Skate and ray landings have typically been recorded in a generic 'skate and ray' category and therefore official data does not provide good information on defining either target or mixed fisheries that take undulate ray. STECF notes that undulate ray do not appear in the STECF effort database.

In its attempt to describe the fisheries for undulate ray in the areas requested STECF has considered information in the most recently available ICES elasmobranch WG report (ICES 2009) and references therein.

The southwest coast of Ireland and English Channel represent the northern limits of the distribution of undulate ray and in these areas it is found in very localised populations (ICES, 2009). A number of nations (UK (E &W), France and Spain) have provided undulate ray landings data to ICES for Sub-area VII (not specified by ICES division) and these have typically been < 5 tonnes per year. The report makes no specific reference to fisheries taking undulate ray in this area, but suggests that most species of skate are taken as by-catch in mixed demersal fisheries using either otter trawl, beam trawl or gillnets.

The ICES report provides some general information (although no data) on fisheries taking undulate ray further south. Spanish catches in the Bay of Biscay and Cantabrian Sea are described as being mostly taken by small artisanal gillnet vessels operating in bays and shallow water. (Trawling is banned in waters < 100 m deep which coincides with the distribution of undulate ray and therefore catches by Spanish trawlers are low). According to the report, the method of operation of these vessels (artisanal gillnet fleet) makes it difficult to get reliable information on landings. Portugal is the only country reporting significant landings to ICES (typically greater than 100 t per year) of undulate ray (from Division IXa), although in recent years skate and ray species composition has been based on sampling from a number of years ago. Banon et al. (2008) (in ICES, 2009) consider undulate ray to be one of the main species caught by the artisanal fisheries in this region.

STECF comments and recommendations

STECF considers that the data and information available to the Committee are insufficient to identify target and mixed fisheries for undulate ray in the areas requested. Although there is some general information on types of vessels and gear (gillnet and trawl) catching undulate ray by ICES area, there is no information available to STECF on specific fishing locations or

seasons, size and mode of operation of vessels or other target/by-catch species. The ability of STECF to make specific recommendations regarding measures relevant to undulate ray conservation in mixed fisheries is therefore limited by a lack of detail relating to the fisheries concerned. Despite this, some generic observations are made on the likely utility of the suggested measures.

Given that undulate ray are a shallow water inshore species with an apparently patchy distribution, STECF considers that seasonal or spatial closures could potentially offer some conservation benefit assuming that suitable areas could be identified. STECF notes that prior to the prohibition on landings of this species, Tralee Bay (in Sub-area VIIj) was voluntarily closed to commercial fishing with the aim of protecting regionally important elasmobranchs such as undulate ray, which in the Irish west coast area, are only found in localized populations.

The usefulness of a complete prohibition on landings or implementation of landings size limits (maximum or minimum) as a conservation measure is dependent on discard survival. STECF has previously been asked to advise on likely discard survival and methods to improve discard survival of undulate ray caught in gillnet and trawl fisheries. STECF PLEN-09-01 considered that survival in gill net fisheries operating under normal conditions is likely to be high provided that damage due to cuts from the netting twine is not too substantial whilst survival of trawl caught individuals is highly dependent on overall bulk of catch and sorting time (i.e. speed of return of fish to water). STECF reiterates its previous comment that until specific details on the gear types and operational procedures of the fisheries concerned are received, it is not in a position to comment on likely discard survival and as a result, on potential beneficial effects of landings prohibitions.

STECF also suggests that requirement to leave the area and notify the position if the catch from any haul exceeds a certain tonnage or proportion of the catch, is in principle a potential mortality mitigation measure. However, the feasibility and enforceability issues need to be addressed.

STECF notes that the ICES WG on elasmobranch fisheries has just met and dealt with the Commision request regarding undulate ray and moreover, will update their biennial advice on elasmobranch stock status this year. STECF anticipates that the ICES response will provide further useful information relevant to this request.

Bañón Diaz, R.; Quinteiro Frenádez, R.; García Tasende, M.; Juncal Cladas, L.M.; Campelos Álvarez, J.M.; Lamas Rodriguez, F.; Morales de la Fuente, C.; and Ribó Landín, J. 2008. Composición, distribución y abundancia de rayas (Elasmobranchii: Rajidae) en aguas costeras de Galicia. Foro Ac. Rec. Mar. Rías Gal. 10: 325–331.

ICES, 2009. Report of the Joint Meeting between ICES Working Group on Elasmobranch Fishes (WGEF) and ICCAT Shark Subgroup, 22–29 June 2009, Copenhagen, Denmark. ICES CM 2009/ACOM:16. 424 pp.

5.6. Atlantic Waters - Request for an STECF opinion on spurdog distribution and migratory patterns

Background

Since December 2008, the EU Council has adopted measures destined to phase out fisheries directed at spurdog (*Squalus acanthias*). This decision takes into account the advice reiterated by ICES (and ratified by the STECF) that the stock is depleted and that no targeted fisheries should be allowed for this species. Indeed, a 2004 study4, already estimated stock depletion to about 5% of virgin biomass.

The Council has agreed to maintain a limited amount of spurdog TAC available, amounting to 10% of the 2009 quotas. Since these fishing opportunities are accompanied by an obligation of immediate release, this allowance is to be used as by-catch quotas and destined to allow landings of animals that cannot be released alive and unharmed to the extent possible.

The Commission has received enquiries by certain Member States as to the effectiveness of the measures in force described above. The allegation is that occasional large unwanted catches of spurdog can be made by trawlers, thus leading to large amounts of discards. Despite relatively high survival rates observed for individuals released after capture, such rates may considerably decrease in case of large catches made in a single haul. Seasonal migration of female aggregations has been described for this species. Large catches of migrating females can be deemed as highly detrimental for the recovery of this depleted stock. The Commission is interested therefore in exploring all possible avenues to facilitate avoidance by fishermen. This includes, necessarily, the review of the science available regarding the spatial distribution of spurdog, its seasonal migrating patterns, and the possible options for avoidance measures.

Terms of References

STECF is requested to review and summarise the state of the knowledge regarding the spatial distribution of the spurdog populations in the Atlantic and North Sea, including what is known regarding migratory patterns during the year.

On the basis of the above, STECF advice is requested on possible spatial-temporal avoidance measures that could be taken by fishermen to prevent large unwanted catches of this species.

In the event that the knowledge regarding the spatial distribution and migration behaviour of this species is not sufficient to formulate recommended avoidance measures, STECF is requested to assess whether the measures currently applied to this species under Council regulation (EU) 23/2010 (Annex IA) are compatible with precautionary principles; if not, what alternative measures should be considered with a view to the 2011 fishing season.

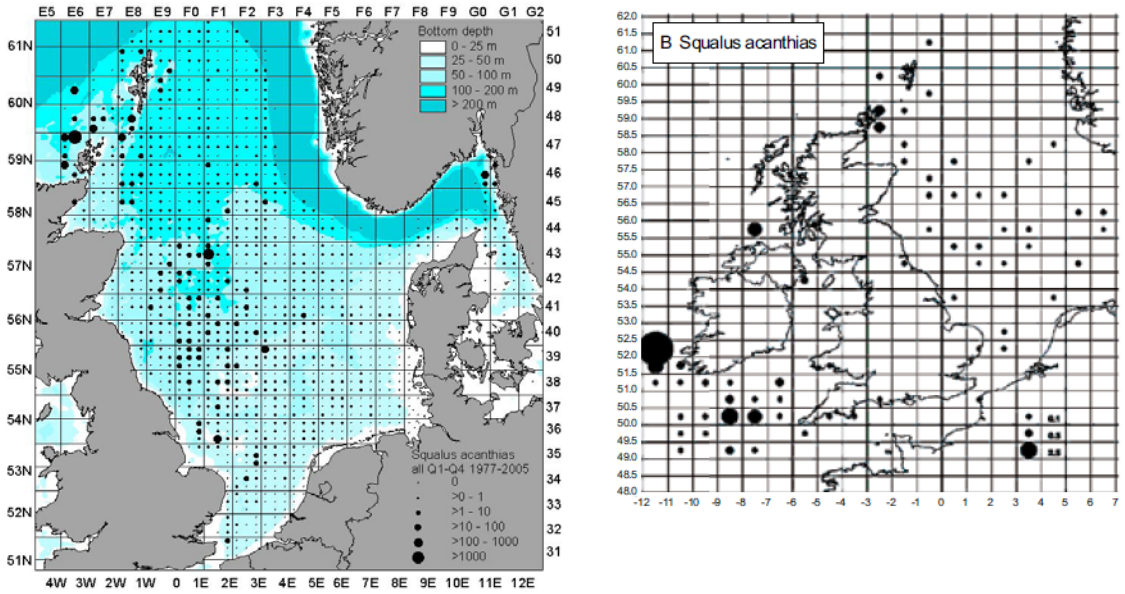
STECF response

State of the knowledge on the spatial distribution and migration pattern of Spurdog.

4 Hammond, T. R., and Ellis, J. R.. 2005. Bayesian Assessment of Northeast Atlantic Spurdog Using a Stock Production Model, with Prior for Intrinsic Population Growth Rate Set by Demographic Methods. J. Northw. Atl. Fish. Sci., 35: 299-308. doi:10.2960/J.v35.m486.

Spurdog (*Squalus acanthias*) is distributed world-wide in temperate and boreal waters. It has been reported in coastal shelf waters of the Northwest and Northeast Atlantic (including the Mediterranean and Black Seas) and the South Atlantic (Compagno, 1984). In the Northeast Atlantic, it is present from Iceland, the northern coasts of Norway and western Russia, to the coast of Northwest Africa (Compagno et al., 2005). Spurdog have been caught at depths down to 900m (Compagno, 1984), but they are mainly observed in waters of 10–200 m in the Northeast Atlantic (McEachran and Branstetter, 1989). The most important areas for the fishery have been the North Sea, West of Scotland, Irish Sea, Celtic Sea and Skagerrak where they have been exploited mainly by UK, Irish, French and Norwegian vessels.

Little information is available in the literature on the distribution and stock structure of spurdog in the Northeast Atlantic. Survey data only covers part of the distribution of the stock (Dobby et al., 2005) and the aggregating behavior of the species makes difficult their interpretation (highly variable catch rates due to occasional large hauls and a significant proportion of zero catches). They indicate however that spurdog is most abundant in the western North Sea (Daan et al., 2005) and off the Orkney and Shetland (Fig. 1a). In the Celtic Sea, large numbers of pregnant females have been reported to occur in winter/early spring (Vince, 1991). Areas with high catch rates of juveniles have also been observed in the Celtic Sea, off south-west Ireland and east of the Orkney Islands (Ellis et al, 2005).



(a) (b)

Figure 5.6.1: (a) Average annual catch rate (number per hour fishing) for spurdog in the IBTS survey for the years 1977-2005 (all quarters) (from Daan et al., 2005)). (b) Distribution and relative abundance (total number of individuals/total number of tows) of juvenile spurdog (≤ 40 cm) from CEFAS groundfish surveys (from Ellis et al. (2005)).

Spurdog often aggregate in shoals of the same sex and size (Hickling, 1930; Fahy, 1988; Fahy, 1989) but it is still unclear if this is linked to distinct geographical distribution of males and females or to shoaling behavior in relation to sizes or sexes (Pawson and Ellis, 2005). The existence of discrete parturition (supposed to occur in coastal bays) and nursery areas has been observed but remains imprecise and would need further study. Hickling (1930) caught large numbers of new-born and pregnant spurdog in relatively shallow waters (e.g. Bantry Bay and Galway Bay), and postulated that the young moved away from shallow waters after parturition. The main pupping season (i.e. the period when the females give birth) has been reported to occur from August to December (Ford, 1921) off the southern coast of England. Studies in the North-West Atlantic indicate that males tend to occupy deeper, more saline water than females (Shepherd et al., 2002). The aggregating behavior by age and sex may have masked stock depletions and allowed targeting of the large pregnant females by the fishery.

Spurdog is also highly migratory. Early British and Norwegian tagging programmes in the 1950s were carried out mainly in the northern North Sea. Spurdog were regularly recaptured off the coast of Norway, indicating a winter migration from Scotland, returning in the summer (Holden, 1967a, Aasen 1960, 1962) and little mixing between northern waters and southern areas. This lead Holden (1965, 1967b, 1968) to hypothesized two distinct stocks : a Scottish-Norwegian stock and a Channel stock. More recent tagging exercises initiated in the Irish and Celtic Seas in 1966 in southerly areas have shown movement from the north-western Irish Sea to northern Scotland and the Celtic Sea and from the Celtic Sea all around the British Isles (Vince, 1991). These tagging experiments suggest that a single Northeast Atlantic stock is more likely. Transatlantic migration is known to have occurred (Templeman, 1976), but only occasionally, and therefore the two north Atlantic stocks are assumed to be separate (Dobby et al., 2005). Based on these studies ICES considers that a single ‘northeast Atlantic’ stock

(Barents Sea, Sub-area I to the Bay of Biscay, Division VIIIa) is the most appropriate unit for assessment and management (ICES 2005).

STECF comments and recommendations

STECF first notes that, in the request, no information is given on the location of the unwanted catches reports, on the fleets involved and on the quantities at stake (catch and discards). This information could be useful to better quantify the potential impact such unwanted catches may have on the effectiveness of the current measures in force and to formulate potential mitigating measures.

STECF notes that state of knowledge on the spatial distribution of the spurdog populations in the Atlantic and North Sea and its migratory patterns during the year is still limited. This is particularly true for accurate data on the location and time of the aggregations of mature female, the location and time of pupping and the location of nursery grounds. This lack of data limits, at present time, the possibility to implement spatial-temporal avoidance measures (time and/or area closures) that could be taken by fishermen to prevent large unwanted catches, more particularly on aggregations of mature female spurdog.

STECF suggests that progress on the development of measures to avoid the catch of spurdog be develop in conjunction with the fishing sector e.g. via a request to the RACs.

STECF notes that, according to ICES, the NE Atlantic stock of spurdog has been declining rapidly and is at its lowest ever level. Input data are however too limited to give an accurate estimate of current stock status in terms of absolute biomass and fishing mortality. STECF notes that measures currently applied to this species under Council regulation (EU) 23/2010 (Annex IA) include:

- No directed fishery
- A limit on the total by-catch at 10% of the 2009 quota
- A maximum landing size for 100cm
- A limit on the by-catch onboard individual vessels at 10% of the total weight of marine organism.
- A prompt release unharmed of catches exceeding the above quantities.

With the limited knowledge available on the status and exploitation of spurdog, STECF is unable to assess whether these measures are compatible with precautionary principles.

There are some indications that survival rate of discards is high (Mandelman and Farrington, 2006). Hence to limit fishing mortality to the lowest possible level, STECF suggests that it would be appropriate to ban all landings of spurdog. However, in case of large catches made in a single haul, damage will be associated with cuts and abrasions incurred through contact with the fishing gear itself and other organisms in the catch. In such situation, STECF considers that, for improving survival rate, there are no specific techniques available other than quick and prompt release that will aid survival of released fish coupled with mechanisms to reduce the bulk catch e.g. reduced towing time or technical measures aimed at reducing un-wanted catches (STECF, 2009). Fishers should therefore be encouraged to develop and use techniques and equipment which, serve to facilitate the rapid and safe release of the species.

STECF also suggests that requirement to leave the area and notify the position if the catch from any haul exceeds a certain tonnage or proportion of the catch, is in principle a potential mortality mitigation measure. However, the feasibility and enforceability issues need to be addressed.

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5.7. Atlantic Waters - Request for an STECF opinion on the implementation of cod avoidance measures in accordance with article 13.2(c) of the cod plan

Background

Under article 13.2(c) of Council Regulation (EC) No 1342/2008 establishing a long-term plan for cod stocks and the fisheries exploiting those stocks, the Member States may allocate additional fishing effort to those effort groups subject to effort adjustments in which the fishing activity of one or more vessel(s) is conducted in accordance with a cod avoidance or discard reduction plan. These measures include

(i) avoiding areas with high cod abundance through Real Time Closures (RTCs),

(ii) the use of selective gears as well as

(iii) other discard reduction actions.

In April 2010 both UK and Ireland notified the Commission of fishing effort increases as a result of low cod catches in accordance with article 13.2 of Regulation (EC) No 1342/2008, in particular in relation to point (c) on cod avoidance measures.

Terms of References

Based on

- the information provided by both UK and Ireland in April 2010 justifying fishing effort increases for certain groups of vessels operating in the North Sea, the Skagerrak and Eastern Channel (area "b" of the cod plan), the West of Scotland (area "d") and the Irish Sea (area "c"), and
- on any other relevant information (e.g. discards, effort, observer and VMS data as well as gear technical attributes, among others),

the STECF is requested to assess the effectiveness of the cod avoidance measures undertaken by the Member States in question. In carrying out its assessment, the STECF is requested to compare the reduction in cod mortality which results from the implementation of cod avoidance or discard measures, as laid down in article 13.2(c) of Council Regulation (EC) No 1342/2008, with the effort reduction for the areas and gears in question that occurred from 20095 to 20106 as a consequence of the effort adjustment referred to in article 12.4 of the same Regulation. It is expected that the STECF advises the Commission on appropriate adjustments in effort that may be applied for the relevant areas and gear groupings as laid down in article 13.7 of Council Regulation (EC) No 1342/2008.

In addition to the aforementioned and to streamline future assessments of cod avoidance or discard measures under article 13.2(c) of Council Regulation (EC) No 1342/2008, the STECF is also requested to advise the Commission on minimum reporting requirements by the Member States, including required details of the vessels' activity.

STECF comments

Evaluation

Two Member States (Ireland and UK) taking up the provisions of Article 13 submitted information to the Commission earlier in 2010 (which was, in the case of the UK, broken down into Scotland, England and Wales, and Northern Ireland). The information consisted of outline intentions for the amounts of effort to be granted back to vessels taking up one or more of the options under the Article 13.

5 Appendix 1 of Annex IIA of Council Regulation (EC) No 43/2009 fixing for 2009 the fishing opportunities and associated conditions for certain fish stocks and groups of fish stocks, applicable in Community waters and, for Community vessels, in waters where catch limitations are required.

6 Appendix 1 of Annex IIA of Council Regulation (EU) No 53/2010 fixing for 2010 the fishing opportunities for certain fish stocks and groups of fish stocks, applicable in EU waters and, for EU vessels, in waters where catch limitations are required (…).

Submission of additional material relevant for attempting to evaluate the performance of the alternative management measures was only made by Scotland. Therefore, STECF comments and evaluations refer to the Scottish fleet only. The material consisted of a summary paper reviewing, where possible, the measures adopted and included key fishery indicators providing an assessment of the net effect. (See Annex V). The paper was accompanied by a series of Appendices giving more background detail.

STECF notes that the information submitted by Scotland to the Commission (see paragraph 1) earlier in the year is generally reflected in the summary paper. Some potentially useful types of data were provided in the summary and STECF identified additional types which should be provided in the future; these are listed at the end of the STECF comments for this report section

STECF acknowledges the effort made by the Scottish fishermen's organizations, the Scottish government, Scottish scientists and an NGO (WWF) to plan and implement a series of management measure aimed to decrease the fishing mortality and discard rates of North Sea cod fished by the Scottish fleet. The major management measures of the Scottish Conservation Credits scheme included Real Time Closures (RTC) and selective gears. STECF recognizes that those measures are in the right direction and that the level of implementation has been quite high and compliance by Scottish fishemen is reported to have been good. In particular, Annex V focuses on the RTC scheme and two metrics (reductions in quantities of cod caught and fishermen's movements described relative to areas of higher cod abundance and distance moved) which provide some evidence of cod avoidance. Gear measures are also described but the paper concludes that it is almost impossible to evaluate their individual effects. STECF suggests that one approach would be to observe catch rates by a vessel over a period of time prior to and following the uptake of a new gear.

STECF recognizes that the spatial and technical measures such as the implementation of RTC, a significant mesh size increase, and the introduction of square mesh panels, have the potential to deliver a significant reduction in mortality and discards and the second part of Annex V investigates these metrics.

A key element in the evaluation of the scheme is the monitoring of discards through the Scottish observer programme. The aim of this programme is to estimate the quantity and the age composition of the discarded component of the catch. The Scottish data series is unique in Europe: it has been made available to ICES for stock assessment purposes for many years and latterly to STECF study groups to evaluate cod recovery measures. Results presented in Annex V suggest a reduction in discards from 60% to 40% of the cod catches (by weight) in the North Sea by TR1 gear from 2008 to 2009. STECF notes that such reductions are not evident by the TR2 gears but points out that since cod bycatch restrictions in TR2 gears are stringent, discarding is likely unless suitable technical measures are employed. In TR2 gear fisheries where some fish bycatch is economically important, the task of reducing only the cod catch remains challenging.

STECF notes that the partial fishing mortality on cod (landings F plus discard F) generated by the Scottish fleet in 2009 did not appear to have declined compared to its 2008 value. In fact, according to the latest ICES advice, F in 2009 has increased in all countries fishing cod in the North Sea, including Scotland, although the relative increase has been lower for the Scottish fleet. Examination of the partial F associated with Scottish discards shows that this has dropped by 25% whereas there has been limited change in other countries. It should be noted that the

level of discarding was particularly high for the Scottish fleet before the implementation of the Scottish Conservation Credits scheme, and such a large reduction is a positive development.

STECF also notes that the incompleteness of data available from some countries (notably discard estimates) renders the initial partial F calculations very preliminary and unsuitable for establishing reliable indications of the relative contributions made by each Member State or the scale of effort changes required by any particular Member State line with cod plan targets.

The more general observation arising from the ICES assessment that 2009 effort cuts applied to the baselines for the fleets fishing North Sea cod, apparently did not produce an equivalent decline in fishing mortality for North Sea cod (or the partial Fs of the MS implementing the effort cut in full) raises some fundamental questions. STECF considers that the result might be due to the fact that fishing effort and fishing mortality are not proportionally correlated as assumed in the cod recovery plan and that targeting behaviour by fleets has the potential to disrupt any such correlation. If this is the case, the intended decline in effort itself might not be able to deliver the equivalent reduction in fishing mortality. Another possibility is that fishing effort actually deployed in 2008 (by any one or more of the member states) was well below the calculated baselines, so that even with the prescribed 25% cut in effort for 2009, there was still headroom to maintain or possibly increase actual effort used in 2009. SGMOS will report later in the year on effort trends including 2009 data and STECF will address this issue then.

STECF recognizes the progress made by Scotland in improving the situation for North Sea cod, notably through the reduction in discards, which may at least partly be due to Conservation Credits measures. However, from the results of the ICES assessment, it appears that the intended 25% reduction in fishing mortality in 2009 compared to 2008 has not been realized.
In order to increase the potential for the measures provided for in Article 13 of the cod management plan to deliver the intended targets, STECF suggests that they should be expanded to include for example: increasing the size of RTC areas, greater uptake of sorting grids or other cod selective gears in the fleet, or further increase of the size selectivity. STECF notes that some of these adjustments have already been adopted in 2010.

STECF considers that the following information should be considered as reporting requirements from MS to allow for future evaluations:

i) Spatial measures:
Detailed information on spatial measures implemented (i.e. closed areas);
Detailed VMS vessel tracks (particularly in relation to closures);
Analysis of landings (or preferably catches) made by vessels affected by closures.

ii) Technical measures:
Numbers of vessels utilizing different technical solutions;
Detailed information on gear characteristics of these vessels (i.e. trawl design, swept area, sweeps size, selectivity, etc.);
Estimates of catch and discards from vessels opting for gear measures before and after implementation;
Estimates of catch and discards representative of groups of vessels (using more selective gears and not using these gears).

iii) Information on derogations:

Numbers of vessels qualifying for derogations;
Catch rates of cod by derogated vessels;
Overall cod catch by derogated vessels.

iv) Overall fishery metrics:
Raised estimates of discards for groups of vessels and the overall fleet – carefully describing the raising procedure used;
Estimates of partial F (could be by specific vessels, groups of vessels or gear types employing certain measures).

5.8. Atlantic Waters - Request for an STECF opinion on the advice released by ICES on Greater silver smelt in ICES subareas I & II, ICES division IIIa, ICES subarea IV, ICES division Vb, ICES subareas VI, VII, VIII, IX, X, XII & XIV

Terms of reference

- STECF is requested to advise whether data analysis suggests decreasing stock trend, thus putting the stock in category 9 rather than 11.
- ICES states that improved data sampling from EU fisheries would be beneficial. STECF is requested to advise whether there are any shortcomings in obligatory data sampling (data collection framework) concerning this stock.

STECF observations

STECF reviewed the ICES advice (June 2010) with regard to silver smelt in 'other areas'. The STECF advice is given in the STECF stock review part II report (STECF/SGRST-10-02[7]).

According to the Data Collection Framework (DCF) Implementation Decision (2008/949/EC and 2010/93/EU), greater silver smelt (argentines) have to be sampled in ICES areas IV, V, VI, VII (excluding d), VIII, IX, X, XII and XIV. In terms of age determination data, 50 otoliths per 1000 t landed have to be read (Appendix VII of DCF Decision).

STECF comments and conclusions

The ICES advice notes that *"a reduction in catches should be considered, in light of survey data indicating a recent decline."* In this respect, STECF considers that Category 9 (decreasing stock trend) is more appropriate than Category 11 (no stock trend) advised by ICES.

STECF notes that apart from Subareas I and II, most of the stock distribution is covered by sampling obligations according to the DCF. However, as approximately 40% of the recent catches (2007-2009) were taken in areas I and II (Norwegian Sea), STECF recommends adding the requirement to sample greater silver smelt in areas I and II when revising the DCF Implementation Decision.

7 Reference will be given when publication numbers will be assigned by OPOCE

As greater silver smelt is by-caught in pelagic (and demersal) fisheries in these areas, onboard sampling schemes should take into account the entire catch composition. STECF notes that the 'concurrent sampling' schemes to be conducted under the DCF should be sufficient to provide estimates on by-catches of greater silver smelt.

5.9. Atlantic Waters - Request for a STECF opinion on assessment of the Member States annual reports whether the conditions for exclusion in accordance with Article 11(2) of the cod plan remain fulfilled

Background

Article 11(2) of Council Regulation 1342/2008 establishing a long-term plan for cod stocks and the fisheries exploiting those stocks8 (the cod plan) lays down the conditions under which the Council, acting on a Commission proposal and on the basis of the information provided by Member States and the STECF advice, may exclude certain groups of vessels from the effort regime.

In 2009 Swedish, Spanish, Polish, British groups of vessel were excluded from the fishing effort regime of the cod plan. The conditions for exclusion for Sweden and Spain are described in the Council Regulation (EC) No 754/20099 but for Poland and United Kingdom in the Council Regulation (EC) No 53/201010.

In accordance with Article 11(3) Member States have to submit annual reports showing that the conditions on exclusion have been complied with during the preceding fishing season. Requirements to the format and substance of the annual reports are set out in Article 4 of the Commission Regulation 237/2010 laying down detailed rules for the application of Council regulation (EC) No 1342/2008. Given that exclusion of Polish and British groups of vessels entered in force at the end of the management period and to reduce administrative burden the Commission considers that it is too early for reporting. Nevertheless, Sweden and Spain have provided the Commission with annual reports. These reports have to be assessed by the Commission and STECF to establish whether conditions on exclusion remain fulfilled.

Terms of Reference

Based on the information provided by Sweden and Spain in their annual reports, the STECF is requested to assess whether the groups of vessels concerned have been complying with the conditions set out in the decision on exclusion. In carrying out its assessment, the STECF is requested to

a) advise whether the data on catches and landings submitted by the Member State support the conclusion that during the preceding fishing season (from the date of

8 OJ L 348, 24.12.2008, p. 20
9 OJ L 214, 19.08.2009, p. 16
10 OJ L 21, 26.01.2010, p. 1

the exclusion), the vessel group has (on average) caught less than or equal to 1,5% of cod from the total catches of the vessels concerned;

b) specify the reasons, if the information presented gives indications on the non-fulfilment of the conditions for exclusion;

In carrying out its assessment, the STECF should consider the rules on vessel group reporting established in Article 4 of Commission Regulation (EU) No 237/2010 laying down detailed rules for the application of Council Regulation (EC) No 1342/2008.

STECF Response

In March 2009, by written procedure, STECF agreed that Sweden presented scientific evidence showing that the vessels for which exemption was sought deploy selective gear that avoids catching cod. At the April 2009 plenary, STECF advised that the Spanish request contained ample circumstantial evidence indicating that one of the groups of vessels for which exemption was sought, namely the trawlers, deploys its activity at depths outside of the biological range of cod.

STECF recalls that Cod catches below 1.5% can be achieved by three principal mechanisms: *spatial decoupling* where the fishing activity occurs outside the normal distribution of cod, especially at a depth higher than 300 meters; *technical decoupling*, where attributes of the fishing gear inhibits the capture of cod or; *depletion decoupling***,** where fishing activity occurs in an area where cod were previously present but catches are low because the stock is depleted. Thus, STECF do not consider the third criteria as a condition for effort exemptions and notes that providing effort exceptions to groups of vessels that meet this third criterion has the potential to negate any attempts to reduce cod mortality and could inhibit stock rebuilding.

Therefore, the advice regarding exemption for Sweden was based on a technical decoupling, while that for Spain pertained with spatial decoupling.

. *Report from Spain*

According to the requirements set out in Article 4 of the Commission Regulation 237/2010, the 2009 annual report from Spain includes two tables, one related to landings per month and per vessel, and the other dealing with sampling on discards. On the first one, the activity of six trawlers, which totalised 377 fishing days in 2009, is reported. Total landings were equal to 1 164 tons, including no landings registered for Cod.

The range of fishing depth varies from 116 to 584 m, and all vessels (excepted one which only fished during 1 day) declared to fish, at least partially, at depths shallower than 300 m. Thus, STECF notes that the previously mentioned spatial decoupling, with was the base for its advice from April 2009, has not materialised.

Six fishing trips have been sampled, totalising 11.1% of the total fishing effort of the vessel group (expressed in Kw.days). The targeted species are defined as Hake, Monkfish and Megrim. No catch (and thus no discards) have been reported for Cod. Based on these samples, the total discards are estimated to have been null for the whole fishery. Nevertheless, STECF notes the following:

The report indicates that samples were performed only in depths deeper than 309 meters (from 309 to 474). Such depths are beyond the normal range of Cod distribution. As this group of vessels have also been fishing at depths shallower than 300 m depth, cod catches could have occurred in depths that were not covered by the sample scheme. Thus, the data are not sufficient to evaluate whether during the preceding fishing season (from the date of the exclusion), the vessel group has (on average) caught less than or equal to 1.5% of cod.

As a conclusion, STECF considers that the group of vessels concerned has not been complying with the conditions set out in the decision on exclusion. STECF notes that according to Article 11(2) the exclusion from the provisions of the cod management plan for this group of vessels should not have been extended into 2010. STECF recommends that in order to protect cod, a mechanism is set up to ensure that the exempted group of vessels do not fish on grounds whose depth is shallower than 300 metres. STECF also recommends that future submission in support of requests for derogations and for evaluations are accompanied with details of the sampling schemes used.

. *Report from Sweden*

The annual report for Sweden also includes two tables. The first one deals with the catch statistics of the exempted group of vessels (effort and catch per month and per vessel). This group comprises 107 boats targeting *Nephrops* in the Skagerrak and Kattegat and using a selectivity grid. In 2009, the total reported fishing effort was equal to 5,116 days at sea (1.19*10^6 kW. days) and total catches of all species were equal to 635 tons. Only 204 kg of cod were reported as landings, which represents 0.03 % of the total catch. The monthly rate of cod landings varies from 0.00 to 0.21 %.

The second table presents results of 1 104 sampled fishing trips from a sample of 13 vessels. This corresponds to 1,130 fishing days and 20.3 % of the total fishing effort (in kW.days). STECF considers that the sampling level is sufficient to give a representative assessment of the overall catch composition. No discards of cod were reported and thus cod discards of the whole fishery are estimated to be null.

Thus, STECF concludes that the data on catches and landings submitted by Sweden indicate that during the preceding fishing season, the vessel group concerned has on average, caught less than 1,5% of cod. Technical decoupling using the selectivity grid appears to be effective at limiting the catch of cod and STECF concludes that based on the information submitted, this group of vessels has been complying with the conditions set out in Article 11(2) of the cod plan.

5.10. External Waters - Request for a STECF opinion on possible limit and/or target reference points in relation to stocks of jack mackerel in South Pacific (*Trachurus murphyi*)

Background

The fishery for Jack Mackerel in South Pacific by EU vessels recommenced in 2005, after several years of no fishing activity that ceased in the area in late 1990s. In 2006 an initiative was undertaken to establish a Regional Fisheries Management Organisation covering the waters of South Pacific (outside national EEZs) and the South Pacific RFMO (SPRFMO) is currently being established. In this context the Participants to the negotiations on the establishment of South Pacific RFMO have agreed on Interim Measures governing access to both pelagic and demersal resources, as well as developed standards for data submissions on the fishing activities. At the last, 8th International Consultations for the establishment of South Pacific RFMO, held in November 2009 in Auckland, NZ, the Participants revised the Interim Measures for Pelagic fishery, which, inter alia, now stipulate a requirement for a 10% scientific observer coverage on board pelagic vessels. It has to be noted that while EU vessels comply with all of the above requirements, these are only voluntary due to the fact that SPRFMO is not as yet fully established.

The SPRFMO Interim Scientific Committee delivered advice on the status of the jack mackerel stocks in November 2009. The advice was rather negative, indicating that fishing mortality (F) is likely to have exceeded sustainable levels since at least 2002, and continues to do so. Moreover, it was noted that the strong inter-annual changes in recruitment and abundance observed in jack mackerel populations appear to be related to changes in oceanographic conditions in the region, particularly shifts in water temperature and primary productivity, and are linked to large-scale oceanographic changes resulting from El Niño and La Niña events and inter-decadal variation in the region. The dynamic nature of oceanography of the region indicates that jack mackerel populations must be expected to show strong natural fluctuations in both abundance and distribution.

However, one has to bear in mind the advice was **not based on a stock assessment, but a comprehensive review of fishery and other indicators was used as the basis for providing advice on the status of jack mackerel**.

The subgroup of the Interim Scientific Committee (Assessment Simulation Task Team), tasked with agreeing on a standard assessment method to be used for future assessments of jack mackerel, agreed in April 2010 to use an extended Statistical catch-age (SCA-Ref/Alaskan model) model for assessments of jack mackerel in 2011 and standard SCA model will be used for assessment in 2010.

Terms of Reference

STECF is requested to provide stock assessment of jack mackerel (*Trachurus murphyi*) distributed in waters of the South Pacific.

In addition, in light of available and reliable information and of characteristics of such stocks, STECF is asked to discuss

a) possible limit reference points or targets reference points (e.g. FMSY or one of its proxy) which could be used for management purposes.

b) strengths and weaknesses of possible input and/or output management options (days at sea, capacity limitation, time/area closures, minimum size) to be applied on stocks of jack mackerel of South Pacific with the aim to conform with limits and/or targets reference points discussed according to the previous point.

c) factors affecting the variability in recruitment of jack mackerel in the area.

STECF response

Status of the stock
STECF regrets that at this time, it is unable to provide a comprehensive response to the Request from the Commission. Specifically the Committee does not have sufficient expertise among its membership with access to the appropriate stock and fishery data to undertake an analytical stock assessment within its plenary meeting. Furthermore, attempts to recruit appropriate expertise with relevant data and information proved to be unsuccessful. Nevertheless STECF was able to review the report from the SPRFMO science WG and associated literature and documentation and is able to provide the following information.

STECF notes that there are no quantitative estimates of biomass reference points for the entire stock complex in the Pacific. However, available information covering 90% of the catches of this stock (i.e. Chilean assessment) and most of its distribution area (i.e. acoustic surveys) indicates a steady decline in SSB since 1998. Fishing mortality (F) is likely to have exceeded sustainable levels since at least 2002. It is highly likely that biomass levels are still declining, as a result of recent poor recruitment. The poor recruitment and decline in SSB are supported by the catch at age profile. STECF agrees with the findings in the 2009 Report of the SPRFMO Science WG.

Reference points
STECF notes that target reference points are already established in the assessment of jack mackerel in Chilean waters (SB/SSO= 40%). Using the F related to the target reference, F/F_{SB40} was 1.29.

Regarding possible limit reference points or targets reference points which could be used for management purposes, STECF recommends to follow the same approach as with any other stock, and use FMSY as the interim target management reference point for fishing mortality. Until an estimate of Fmsy for jack mackerel is available, STECF considers that F0.1 should be used as an appropriate proxy.

Management options
As no analytical stock assessment is currently available, a quantitative assessment of the strengths and weaknesses of different management options cannot be undertaken. However, to re-build the Pacific jack mackerel stock, fishing mortality should be limited to sustainable levels. This implies that fishing mortality should be reduced from the present level. To achieve a decrease in fishing mortality a reduction in total removals is needed.

In Chilean waters, management measures include the imposition of a maximum catch limit per ship owner, according to the shipowner's historical catch records, i.e. a TAC for the annual catch of each fishing company. It is worth noting that jack mackerel catches within the Chilean EEZ and on the adjacent high seas contributed 88% of the total jack mackerel catch reported to SPRFMO in 2007 - 2008. The implementation of the maximum catch limit per owner contributed to the decrease in the fleet size, Larger vessels with higher fishing capacity replaced smaller vessels, facilitating operating in adverse conditions, fishing over a wider area in high seas and conducting longer fishing trips. STECF considers that a limit on the total annual catches is an appropriate management measure for jack mackerel as it is caught in a single

species pelagic fishery, Until issues relating to stock identity have been resolved, STECF recommends that single TAC for the entire stock complex of jack mackerel in the Pacific set on an annual basis is the most appropriate management measure.

Recruitment

The reported strong inter-annual changes in recruitment and stock abundance appear to be related to changes in oceanographic conditions in the region. In the last decade, recruitment has been low and is currently estimated to be very low. At present, the existing knowledge base is insufficient to allow a considered response to the request on recruitment variability.

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7. ANNEXES

List of Annexes:

- Annex I: Terms of reference for the SGMOS-09-03, 09-04 & 09-05 Working Groups.
- Annex II: Terms of reference for the SGRN-10-01 Working Group.
- Annex III: Terms of reference for the SGRN-10-02 Working Group.
- Annex IV: Terms of reference for the SGRST-10-02 Working Group.
- Annex V: Measures employed in Scotland under the management plan for cod stocks Article 13 provision during 2009 – 'Conservation Credits'
- Appendix 1 to Annex V: Scottish Government Conservation Credits scheme, Scheme rules, Version 1.0: issued 31 July 2009
- Appendix 2 to Annex V: Fleet responses to real-time closures
- Appendix 3 to Annex V: North Sea cod discards in the Scottish demersal fisheries: observer data update.
- Appendix 4 to Annex V: Discards in the West of Scotland demersal fisheries: Observer data Update.
- Annex VI: STECF SGMOS Summary of main observations and findings from SGMOS_09_05 concerning Deep Sea and Western Waters

7.1. Annex I: Terms of reference for the SGMOS-09-03, 09-04 & 09-05 Assessment of Fishing Effort Regimes - Parts 2 & 3

TERMS OF REFERENCE

2 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Kattegat (Annex IIA to Regulation (EC) No 43/2009)

Terms of Reference:

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

Kattegat (ICES functional unit IIIaS)

The data should also be broken down by

Member State ;

regulated gear types designed in **Annex II** to **R(EC) No 40/2008** and in **Annex I** to **R(EC) No 1342/2008** (and by associated special conditions defined in Annex II to **R(EC) No 40/2008** as far as relevant) ;

unregulated gear types catching cod ;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of cod, sole and plaice by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod , non-sole and non-plaice by species, by weight and by numbers at age

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod, sole and plaice (such data shall be issued by Member state, fishing area and fishing effort group designed in **Annex I to R(EC) No 1342/2008**).

2. The following **specific questions** should be answered as well:

Concerning effort in kW-days by gear grouping deployed during the years 2004, 2005, 2006 and 2007: to what extent does data provided by Member States differ from data provided in the **2008 data call**, which are the reasons given for such differences, and are the differences

reasonably explained so that the working group considers reporting on the revised data being more accurate?

3. Based on the information compiled under point (1) above, to rank fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**, on the basis of their contribution to catches expressed both in weight and in number of cod, sole and plaice.

4. If relevant data are available, to comment on the quality of estimations on total catches and discards.

5. To assess the fishing effort and catches (landings and discards) of cod, sole and plaice and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

6. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the Kattegat, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.

3 – an assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Skagerrak, the North Sea and the Eastern Channel (Annex IIA to Regulation (EC) No 43/2009)

Terms of Reference:

1. To provide historical series, as far back in time as possible, according to each of the following fishing areas:

(i) Skagerrak (ICES functional Unit IIIaN),
(ii) North Sea (EC waters of ICES sub-area II and ICES sub-area IV),
(iii) Eastern channel (ICES division VIId)

The data should also be broken down by

Member State ;

regulated gear types designed in **Annex II** to **R(EC) No 40/2008** and in **Annex I** to **R(EC) No 1342/2008** (and by associated special conditions defined in Annex II to **R(EC) No 40/2008** as far as relevant) ;

unregulated gear types catching cod, sole and plaice in fishing areas (i), (ii) and (iii) ;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of cod, sole and plaice by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod , non-sole and non-plaice by species, by weight and by numbers at age.

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod, sole and plaice (such data shall be issued by Member state, fishing area and fishing effort group designed in **Annex I to R(EC) No 1342/2008**).

2. The following **specific questions** should be answered as well:

a. Concerning effort in kW-days by gear grouping per area deployed during the years 2004, 2005, 2006 and 2007: To what extent does data provided by Member States differ from data provided in the **2008 data call**, which are the reasons given for such differences, and are the differences reasonably explained so that the working group considers reporting on the revised data being more accurate?

b. Concerning effort in kW-days and gear grouping (also per Member State), catches and cpue/lpue in the **Eastern Channel** (division VIId): Describe the development of these parameters in 2008 compared to previous years, overall and per Member State, and compare these developments to developments observed in the rest of the area (Skagerrak and North Sea), in particular: Can effort displacement from the North Sea towards the Eastern Channel be identified in certain gears?

3. Based on the information compiled under point (1) above, to rank fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**, on the basis of their contribution to catches expressed both in weight and in number of cod, sole and plaice.

4. If relevant data are available, to comment on the quality of estimations on total catches and discards.

5. To assess the fishing effort and catches (landings and discards) of cod, sole and plaice and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

6. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the the Skagerrak, the North Sea and the Eastern Channel, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.

4 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the West of Scotland (Annex II A to Regulation (EC) No 43/2009)

Terms of Reference:

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

West of Scotland (ICES division VIa and, in 2009 for the first time, EC waters of Vb)

The data should also be broken down by

Member State ;

regulated gear types designed in **Annex II** to **R(EC) No 40/2008** and in **Annex I** to **R(EC) No 1342/2008** (and by associated special conditions defined in Annex II to **R(EC) No 40/2008** as far as relevant) ;

unregulated gear types catching cod ;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of cod, sole and plaice in areas covered by Annex IIA, by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod , non-sole and non-plaice by species, by weight and by numbers at age.

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod, sole and plaice (such data shall be issued by Member state, fishing area and fishing effort group designed in **Annex I to R(EC) No 1342/2008**).

2. The following **specific questions** should be answered as well:

a. Concerning effort in kW-days by gear grouping per area deployed during the years 2004, 2005, 2006 and 2007: To what extent does data provided by Member States differ from data provided in the **2008 data call**, which are the reasons given for such differences, and are the differences reasonably explained so that the working group considers reporting on the revised data being more accurate?

b. Concerning effort in kW-days, catches and cpue/lpue for 2004, 2005, 2006 and 2007: What effect, at Member State level, does the inclusion of EC waters of division Vb have on the data concerning the area **West of Scotland** ?

3. Based on the information compiled under point (1) above, to rank fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**, on the basis of their contribution to catches expressed both in weight and in number of cod, sole and plaice.

4. If relevant data are available, to comment on the quality of estimations on total catches and discards.

5. To assess the fishing effort and catches (landings and discards) of cod, sole and plaice and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

6. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the the West of Scotland, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.

5 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Irish Sea (Annex IIA to Regulation (EC) No 43/2009)

Terms of Reference:

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

(d) Irish Sea (ICES division VIIa)

The data should also be broken down by

Member State ;

regulated gear types designed in **Annex II** to **R(EC) No 40/2008** and in **Annex I** to **R(EC) No 1342/2008** (and by associated special conditions defined in Annex II to **R(EC) No 40/2008** as far as relevant) ;

unregulated gear types catching cod ;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of cod, sole and plaice, by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod , non-sole and non-plaice by species, by weight and by numbers at age

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod, sole and plaice (such data shall be issued by Member state, fishing area and fishing effort group designed in **Annex I to R(EC) No 1342/2008**).

2. The following **specific questions** should be answered as well:

Concerning effort in kW-days by gear grouping per area deployed during the years 2004, 2005, 2006 and 2007: To what extent does data provided by Member States differ from data provided in the **2008 data call**, which are the reasons given for such differences, and are the differences reasonably explained so that the working group considers reporting on the revised data being more accurate?

3. Based on the information compiled under point (1) above, to rank fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**, on the basis of their contribution to catches expressed both in weight and in number of cod, sole and plaice in areas covered by Annex IIA to **R(EC) No 43/2009**.

4. If relevant data are available, to comment on the quality of estimations on total catches and discards.

5. To assess the fishing effort and catches (landings and discards) of cod, sole and plaice and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

6. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the Irish Sea, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.

6 – An assessment of fishing effort deployed by fisheries and métiers which will be affected by the extension of the cod recovery plan to the Celtic Sea

Terms of Reference:

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

(g) Celtic Sea (total of ICES divisions VIIb, VIIc, VIIe, VIIf, VIIg, VIIh, VIIj and VIIk and total for the subset of ICES divisions VIIf and VIIg)

The data should also be broken down by

Member State ;

regulated gear types designed in **Annex II** to **R(EC) No 40/2008** and in **Annex I** to **R(EC) No 1342/2008** (and by associated special conditions defined in Annex II to **R(EC) No 40/2008** as far as relevant) ;

unregulated gear types catching cod ;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of cod by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-cod by species, by weight and by numbers at age.

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of cod (such data shall be issued by Member state and fishing effort groups as designed in **Annex I to R(EC) No 1342/2008**).

2. When providing and explaining data in accordance with point (1), the following **specific questions** should be answered as well:

a. Concerning effort in kW-days by gear grouping per area deployed during the years 2004, 2005, 2006 and 2007: To what extent does data provided by Member States differ from data provided in the **2008 data call**, which are the reasons given for such differences, and are the differences reasonably explained so that the working group considers reporting on the revised data being more accurate?

b. Concerning effort, CPUE/LPUE and catch data linked to the **Celtic Sea**:

(i) Compare the fishing effort level evaluated per fishery and per gear groupings in VIIf+VIIg with the data submitted for ICES rectangle 28E2 and conclude on whether exploitation of cod shows similar characteristics;

(ii) For VIIf+VIIg only, evaluate how much of the overall fishing effort per gear groupings would be framed by a management of fishing effort that relates to cod catches of 2 or 3 or 5 or 7,5 % in the catch composition per vessel and per year ?

(iii) For VIIf+VIIg only, identify the **main species** (volume and percentage) caught per gear category, and related trends in recent years. Specify when this calculation has taken account of discards as well.

3. If relevant data are available, to comment on the quality of estimations on total catches and discards.

4. To assess the fishing effort and catches (landings and discards) of cod and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

6. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the Celtic Sea, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.

7 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Atlantic waters of the Iberian Peninsula (Annex IIB to Regulation (EC) No 43/2009)

Terms of Reference:

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

Atlantic waters of the Iberian Peninsula (ICES divisions VIIIc and IXa, excluding the Gulf of Cadiz)

The data should also be broken down by

Member State ;

regulated gear types designed in **Annex II** to **R(EC) No 40/2008** (and by associated special conditions defined in Annex II to **R(EC) No 40/2008** as far as relevant) ;

unregulated gear types catching hake and Norway lobster ;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of hake and Norway lobster by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-hake and non-Norway lobster in areas covered by Annex IIB (a particular attention should be paid to **Anglerfish catches**), by species, by weight and by numbers at age

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of hake, Norway lobster and Anglerfish in areas covered by Annex IIB (such data shall be issued by Member state, fishing gear and special conditions listed in **Annex IIB to R(EC) No 43/2009**).

2. The following **specific questions** should be answered as well:

Concerning effort in kW-days by gear grouping per area deployed during the years 2004, 2005, 2006 and 2007: To what extent does data provided by Member States differ from data provided in the **2008 data call**, which are the reasons given for such differences, and are the differences reasonably explained so that the working group considers reporting on the revised data being more accurate?

3. If relevant data are available, to comment on the quality of estimations on total catches and discards.

4. To assess the fishing effort and catches (landings and discards) of hake, Norway lobster and Anglerfish, and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

5. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the Atlantic waters of the Iberian Peninsula, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.

8 – An assessment of fishing effort deployed by fisheries and métiers which are currently affected by fishing effort management schemes defined in the Western Channel (Annex IIC to Regulation (EC) No 43/2009)

Terms of Reference:

1. To provide historical series, as far back in time as possible, according to each of the following fishing area:

Western Channel (ICES division VIIe)

The data should also be broken down by

Member State ;

regulated gear types designed in **Annex II** to **R(EC) No 40/2008** (and by associated special conditions defined in Annex II to **R(EC) No 40/2008** as far as relevant) ;

unregulated gear types catching sole ;

for the following parameters:

a. Fishing effort, measured in kW.days, in GT.days and in number of vessels concerned

b. Catches (landings and discards provided separately) of sole in areas by weight and by numbers at age.

c. Catches (landings and discards provided separately) of non-sole in areas by species, by weight and by numbers at age

d. Landings Per Unit of Effort (LPUE) and Catches Per Unit Effort (CPUE) of hake, Norway lobster and Anglerfish (such data shall be issued by Member state, fishing gear and special conditions listed in **Annex IIB to R(EC) No 43/2009**).

2. The following **specific questions** should be answered as well:

Concerning effort in kW-days by gear grouping per area deployed during the years 2004, 2005, 2006 and 2007: to what extent does data provided by Member States differ from data provided in the **2008 data call**, which are the reasons given for such differences, and are the differences reasonably explained so that the working group considers reporting on the revised data being more accurate?

3. If relevant data are available, to comment on the quality of estimations on total catches and discards.

4. To assess the fishing effort and catches (landings and discards) of hake, Norway lobster and Anglerfish and associated species corresponding to vessels of length overall smaller than 10 metres in each fishery, by gear (corresponding to regulated and unregulated gear as defined in Annex II framework) and by Member State according to sampling plans implemented to estimate these parameters.

6. To describe, as far as possible, the spatial distribution of the fishing effort deployed in the Atlantic waters of the Iberian peninsula, according to data reported in logbooks on the basis of ICES statistical rectangles, with the aim to determine to what extent fishing effort has moved

from long distance to coastal areas since the implementation of first fishing effort regime for the first time in such areas.

9 - Assessment of fishing effort and evaluation of management measures to be assessed in 2009 (Deep sea and Western Waters effort regime)

Terms of Reference:

A) Deep sea access regime

Background

Council Regulation 2347/2002 established specific access requirements to fishing for deep-sea species, aiming at limiting fishing effort on deep-sea species at levels observed prior to that Regulation (1998 to 2000). In addition, the yearly overall maximum effort in terms of kilowatt-days has been fixed by annual decisions emanating from the December regulation on TACs & Quotas in order to comply with NEAFC provisions regarding the effort reduction policy within the Regulated area in international waters. The Commission presented an evaluation report on the management of deep sea fish stocks to the Council and the Parliament in 2007 (COM(2007)30). In this report, the Commission concluded on a number of steps to be taken in order to improve the access regime. In 2008 the European Parliament adopted a report that reflects on the access regime and the Commission's view on future development (A6-0103/2008). The Commission plans to propose amendments to the access regime in 2009, after stocktaking of Member State and stakeholder views and of scientific advice.

Detailed Request

STECF is asked to

1) in view of the management objective to target effort measures towards specific fisheries:

a) Related to maps[11] that show by ICES statistical rectangle the distribution of catch volumes (species in order of importance) and related effort volumes (per gear category): Define the deep-sea fisheries by analysing per year, including trends observed, at Community and Member State level, gears and related effort in kW-days catching in distinct areas the species listed in Annex I and II of Regulation 2347/2002. Analyse the catch composition observed by gear category including trends over recent years, catch per unit effort and, where possible, the likely level of discards. Comment on any fishing practices that can be identified as influencing the differences in catch composition from haul to haul. Can the species be grouped into target species and by-catch species in each fishery?

b) Advise on possible improvements to

the definition of data that Member States are obliged to send to the Commission in accordance with Article 9 of Regulation 2347/2002, with a view to improving the definition of deep-sea fisheries as undertaken under litera a);

11 As of end of March, it is planned that JRC will produce those maps prior to meeting.

other provisions of Regulation 2347/2202, in particular the one on the on-board observer coverage (Article 8).

2) in view of the management objective to define most relevant species of the deep-sea fisheries, to target effort measures towards specific fisheries, and to define the measures according to the conservation needs of the species,
Review the species lists of Annex I and II of Regulation 2347/2002 according to the following criteria:

a) In the fisheries identified, are there any other deep-sea species being caught in quantities that would merit their inclusion in Annex I or II? For example:*Physis spp.*; *Alepocephalus bairdii*.

b) Are any of the species listed in the annexes often or predominantly caught in fisheries that target non-deep sea species? If so, should they continue to be included in the list of deep-sea species in Annexes I or II?

c) Could the species listed in Annex I and II be grouped into:
- species that based on their life history characteristics are particularly vulnerable to fishing and should therefore not be exploited
- species that based on their life history characteristics are less vulnerable to fishing and could thus be sustainably exploited.

d) Following from the exercise described under point 1), could the species listed in Annex I and II be grouped according to target/by-catch species combining all fisheries observed?

3) See point 2 a) of the Western Waters part of the ToR. This point concerns deep sea and Western Waters regime likewise.

B) Western Waters access regime

Background

The Commission is held to review the Western Waters access regime in force since 2004, based on Regulations 1954/2003 and 1415/2004. The objective of the Western Waters access regime is to avoid an increase in fishing effort compared to recent levels (1998-2002), defined as overall effort directed towards demersal stocks, and effort on some benthic fisheries. A separate constraint on maximum effort levels within a special conservation zone, the so-called "Irish Box", is designed to accompany the restrictions on the use of demersal gears in that area, in view of the area's importance as a spawning and nursery ground, in particular for hake.

Detailed request

STECF is asked to

1) Concerning the functioning of the WW effort regime:

a) Aggregate at Member State and Community level fishing effort per year in kW-days and GT-days by demersal gear types, by vessel length >10m and >15m, and by ICES areas V to X and CECAF divisions 34.1.1, 34.1.2, 34.2.0; provide a description of yearly

effort trends since 2000 per area, gear and main species composition, compare these aggregated data with effort ceilings established in Regulation 1415/2004 and with Member State data submissions to the Commission under Regulation 2104/2004.

b) Aggregate at Member State and Community level fishing effort directed towards scallops per year in kW-days and GT-days by gears and by vessel length >10m and >15m by ICES areas V to X and CECAF divisions 34.1.1, 34.1.2, 34.2.0; provide a description of yearly effort trends since 2000 per area and gear, compare these aggregated data with effort ceilings established in Regulation 1415/2004 and with Member State data submissions to the Commission under Regulation 2104/2004.

c) Aggregate at Member State and Community level fishing effort directed towards edible crab and spider crab per year in kW-days and GT-days by gears and by vessel length >10m and >15m by ICES areas V to X and CECAF divisions 34.1.1, 34.1.2, 34.2.0; provide a description of yearly effort trends since 2000 per area and gear, compare these aggregated data with effort ceilings in Regulation 1415/2004 and with Member State data submissions to the Commission under Regulation 2104/2004.

d) Aggregate at Member State and Community level fishing effort per year in kW-days and GT-days by vessel length >10m and >15m and by
demersal gear types,
by gears catching scallops,
and by gears catching edible crab as well as spider crab,
in the Biologically Sensitive Area as defined in Article 6 of Regulation 1954/2003; provide a description of effort trends since 2000 in this area, compare these aggregated data with effort ceilings established in Regulation 1415/2004 and with Member State data submissions to the Commission under Regulation 2104/2004.

2) Concerning the definition of the WW effort regime:

a) Assess the definition of the WW effort restrictions in the context of overlapping or neighbouring effort regimes, in particular the deep sea access regime (Regulation 2347/2002), the cod plan (Regulation 1342/2008), the Southern hake plan (Regulation 2166/2005) and the Western Channel sole plan (Regulation 509/2007). In particular:

The present Western Waters regime aims at excluding fisheries directed towards deep-sea species. Discuss possible alternative criteria for the delimitation of both regimes (e.g. according to the depth of the waters in which the vessels operate or according to catch composition) or specific rules for addressing vessels that catch both deep sea species and other species;

Discuss possible redefinition of the scope of Western Waters effort restrictions in areas where fishing effort is restricted by the cod plan (VI a, V b, VII a);

b) Evaluate the precision of the definition in Regulations 1954/2003 and 1415/2004 of "fishing effort" in terms of area, time, and fishing pattern;

c) Evaluate whether fishing effort defined in GT-days or in kW-days is better correlated to the fishing mortality on edible crab and spider crab;

d) Assess possible reasons for excluding gears directed towards pelagic fisheries from the regime, in particular whether effort restrictions for pelagic fisheries in those areas might be less correlated to fishing mortalities than effort restrictions for demersal fisheries.

3) Concerning the possible evolution of the WW effort regime

a) Describe in a standardised way at Community level the characteristics of the demersal fisheries by main effort (by overall amount in kW-days and by gear category according to DCR) and main quota species (by catch volume), per ICES division in areas V to X and in CECAF 34.1.1, 34.1.2, 34.2.0, for the years 2005 to 2008;

b) Assess the relationship between the development of demersal effort in these areas and the development of TACs of main demersal species abundant in those areas, for the years 2005 to 2008.

7.2. Annex II: Terms of reference for the SGRN-10-01 Working Group

SG-RN 10-01 – Evaluation of 2011-2013 National Programmes linked to the Data Collection Framework

TERMS OF REFERENCE

1. Evaluation of 2011 – 2013 National Programmes

To evaluate the 2011 to 2013 National Programmes submitted under the new Data Collection Framework (Council Regulation (EC) 199/2008) using the new Guidelines and Procedures developed in SGRN 09-03. The evaluation will be based on the overarching criteria of conformity and scientific relevance. The subgroup will also consider the performance of the new guidelines for submission of NPs and, where necessary, make appropriate recommendations for their improvement.

2. Response by MS to the call for economic data launched to produce the draft report on the "Economic Performance of EU Fishing Fleet: Annual Report 2010 "

To evaluate the situation regarding the response by MS to the call for economic data launched to produce the draft report on the "Economic Performance of EU Fishing Fleet: Annual Report 2010 " Data failures will be clearly stressed by the group in order to allow the Commission to enforce MS obligations on a clear basis.

3. Comments made by STECF

To review the comments made by of STECF during the April 2010 Plenary in relation to the work of SGRN ,

In particular on the following issues will be addressed;

- **Data Deficiencies** To present the state of play of user's feed back and develop a template and procedure for reporting data deficiencies by data user groups (e.g. STECF) and with particular emphasis on ICES expert groups.
- **Review of Research Surveys** To examine the current status of preparations for the review of research surveys to be carried out in October 2010.
- **Marine Strategy Framework Directive**. To address the collection of data under the DCF framework that relates to the Marine Strategy Framework Directive.

4. Comments made by 7th LM

To review the comments and action points made by the 2010 RCM's and the 7th Liasion Meeting in order to ensure that these recommendations are followed up

5. Regional Data Bases

To review progress on the development of regional databases following the RDB Workshop and discussions at the RCM and LM.

7.3. Annex III: Terms of reference for the SGRN-10-02 Working Group

SG-RN 10-02: Evaluation of 2009 technical reports elated to the Data Collection Framework

TERMS OF REFERENCE

1. Evaluation of 2009 Annual Reports in accordance with Article 7.2 of Council Regulation (EC) No 199/2008, taking into account

a. The execution of the National Programmes 2009

b. The quality of the data collected by the Member states

c. Information from end users on data transmission in 2009

2. Review of Comments made at STECF in Spring plenary

In particular the following issues will be dealt with:

Data Deficiencies subgroup to assess the state of play of user's feed back and develop a template and procedure for reporting data deficiencies by data user groups (STECF, ICES, ICCAT, GFCM and other RFMOs or international scientific bodies)

To this end an ad hoc subgroup will be appointed. The main task of this subgroup is identifying data failures in order to allow the Commission to enforce MS obligations on a clear basis. It is expected that quality, comparability and coherence issues will be raised by the economists and biologists, with particular emphasis on quality checks. The following information will be analysed by the subgroup:

a. Balance of data transmission to end-users in 2009. Particular attention will be paid to the provision of feedback by ICES and relevant RFMOs on data availability, quality, gaps and the data used in the scientific advisory process.

b. Response by MS to calls for data for fisheries advice providing data for STECF meetings and evaluation of sub groups' feedback on data quality.

c. Response by MS to the call for economic data launched to produce the draft report on the "Economic Performance of EU Fishing Fleet: Annual Report 2010 (AER)"

3. Examine the current status of preparations for the review of research surveys to be carried out in October 2010.

4. AOB

7.4. Annex IV: Terms of reference for the SGRST-10-02 Working Group

TERMS OF REFERENCE

SG-RST 10-02: Review of scientific advice on North Sea stocks and fisheries, on North Western waters stocks and fisheries, on South Western waters stocks and fisheries, on deep sea stocks, on widely distributed stocks

TERMS OF REFERENCE

The STECF is requested to review and comment on the scientific advice released in 2009 – 2010 in particular for the stocks specified below. The text of previous STECF reviews of stocks for which no updated advice is available shall be retained in the report in order to facilitate easy reference and consultation.

STECF is requested, in particular, to highlight any inconsistencies between the assessment results and the advice delivered by scientific advisory committees of ICES and RFMOs.

In addition, when reviewing the scientific advice from ICES, and any associated management recommendations, STECF is requested to take into account Harvest Control Rules adopted in any type of multi-annual management plans and Harvest Control Rules suggested in the Communication from the Commission on fishing opportunities for 2011 (COM(2010)*241*-FINAL – see supporting documentation. STECF is therefore requested to advise on the TACs corresponding to the implementation of Annex III (pages 17-18) of COM(2010)*241*-FINAL. When interpreting such rules, references to reductions by one-quarter should be taken to mean reductions corresponding to reducing fishing mortalities by equal decrements over the four years from 2011 to 2014, F_{msy} being implemented in 2015.

In addition, for those stocks, excluding naturally short-lived species, where it will not be possible to provide advice based on a catch forecast in relation to precautionary limits, STECF is requested to advise on a TAC corresponding to the application of the following rule for category 6 to 9 stocks of the Commission communication on fishing opportunities for 2011 (COM(2010)*241*-FINAL):

1. Where there is evidence that a stock is overfished with respect to the fishing mortality that will deliver maximum sustainable yield (or is depleted to a low level compared with historic levels), a reduction in TAC as needed to reach F_{msy}, but no greater than 15% would apply.

2. Where there is evidence that a stock is under fished with respect to the fishing mortality that will deliver maximum sustainable yield, an increase as needed to reach F_{msy}, but no greater than 15%, would apply.

3. The considerations in paragraphs 1 and 2 override subsequent paragraphs.

4. Where abundance information either indicates no change in stock abundance, is not available or does not adequately reflect changes in stock abundance, an unchanged TAC would apply.

5. Where ICES considers that representative stock abundance information exists, the

following rule applies:

a. If the average estimated abundance in the last two years exceeds the average estimated abundance in the three preceding years by 20% or more, a 15% increase in TAC applies.

b. If the average estimated abundance in the last two years is 20% or more lower than the average estimated abundance in the three preceding years, a 15% decrease in TAC applies.

Where TACs have not been restrictive, and a reduction is required according to paragraph 1 or paragraph 5.b, STECF shall advise on an appropriate level of TAC reduction necessary to achieve the intended reduction in catches. STECF shall decide on an appropriate F_{msy} proxy in each case.

- ✓ **<u>Eco-Region 1:</u> North Sea**
  - **DG Mare focal person:** Peter Hopkins, Unit E2
  - Stocks of
    - Cod in ICES subarea IV, ICES divisions VIID and IIIa (Skagerrak)
    - Cod in ICES division IIIa (Kattegat)
    - Haddock in ICES subarea IV and ICES division IIIa (Skagerrak & Kattegat)
    - Whiting in the ICES subarea IV and ICES division VIId
    - Saithe in the ICES subarea IV, ICES division IIIa and ICES subarea VI
    - Anglerfish in ICES division IIIa , subareas IV & VI
    - Plaice in the ICES subarea IV
    - Plaice in the ICES division VIId
    - Plaice in ICES division IIIa
    - Sole in ICES division IIIa
    - Sole in ICES subarea IV
    - Sole in ICES division VIId
    - Sandeel in ICES division IIIa (Skagerrak & Kattegat)
    - Sandeel in ICES subarea IV
    - Sandeel in Shetland area
    - Norway Pout in ICES subarea IV & ICES division IIIa (Skagerrak & Kattegat)
    - *Pandalus* stocks
    - Herring in ICES division IIIa and subdivisions 22-24 (Western Baltic Spring spawners)
    - Herring in ICES division IIIa, subarea IV and division VIId (North Sea Autumn spawners)
    - Sprat in the North Sea
    - Mackerel in the North Sea
    - North Sea horse mackerel (*Trachurus trachurus*) in ICES division IIIa (eastern part), IVb, IVc & VIId
    - Rays and skates in the North Sea
    - Spurdog
    - *Nephrops norvegicus* in ICES division IIIa (Fisheries Units 3 & 4)

- *Nephrops norvegicus* in Norwegian Deep (Fisheries Unit 32
- *Nephrops norvegicus* in divisions IVa, Noup (Fisheries Unit 10) and Moray Frith (Fisheries Unit 9)
- *Nephrops norvegicus* in ICES division IVa, Fladen ground (Fisheries Unit 7)
- *Nephrops norvegicus* in ICES division IVb, Firth of Forth (Fisheries Unit 8) and Farn Deep (Fisheries Unit 6)
- *Nephrops norvegicus* in ICES divisions IVb & IVc, Botney Gut / Silver Pit (Fisheries Unit 5) and Off Horn Reef (Fisheries Unit 33)

When drafting its advice on North Sea Herring, STECF will be invited to take into account the following information:

According to information made available by the Pelagic RAC to the Commission, it appears that during the 2010 ICES Herring Assessment Working Group (HAWG) a comparison between 2009 and 2010 estimations of the Spawning Stock Biomass (SSB) and the fishing mortality (F) showed substantial differences, what has resulted in the SSB being re-estimated to 1,29 million tonnes - from the original estimate of less than 1 million tonnes - and the realised fishing mortality being estimated to 0,11.

When reviewing advice released by ICES and if such an information is to be confirmed, STECF is requested to indicate what the 2010 TAC would have been by applying agreed HCRs corresponding to the reviewed status of the stock.

✓ **Eco-Region 2: Celtic sea and West of Scotland**

- **DG Mare focal persons:** Kenneth Patterson, Unit C2
- Stocks of
  - Anglerish (*Lophius piscatorius* & *L. budegassa*) in ICES divisions IIa, IIIa, ICES subareas IV and VI
  - Anglerfish (*Lophius piscatorius* & *L. budegassa*) in divisions VIIb-k, VIIIa & VIIIb
  - Cod in ICES division VIa
  - Cod in ICES division VIb
  - Cod in ICES division VIIa
  - Cod in ICES divisions VIIe-k
  - *Galeorhinus galeus* in ICES subareas VI and VII
  - Haddock in ICES division VIa (including extra catch option requested by Commission – see below)
  - Haddock in ICES division VIb
  - Haddock in ICES division VIIa
  - Haddock in ICES divisions VIIb-k
  - Herring in ICES divisions VIIa-South & VIIb-k
  - Herring in ICES division VIa-North
  - Herring in Celtic Sea and ICES division VIIj (including extra catch option requested by Commission – see below)
  - Herring in ICES division VIIa-North (irsih Sea)
  - Megrims (*Lepidorhombus whiffiagonis* & *L. boscii*) in ICES divisions VIIb, VIIIc, VIIe-k, VIIIa, VIIIb & VIIId
  - Megrims (*Lepidorhombus whiffiagonis* & *L. boscii*) in ICES subarea VI
  - *Nephrops novegicus* in ICES divisions VIIb, VIIc VIIj & VIIk

- *Nephrops novegicus* in ICES divisions VIIf, VIIg & VIIh (Fisheries Units 20-22)
- *Nephrops novegicus* in ICES division VIa (Fisheries Units 11, 12, 13)
- *Nephrops novegicus* in Fisheries Units 14 & 15
- Norway pout in ICES division Via
- Plaice in ICES division VIIa
- Plaice in ICES divisions VIIb & VIIc
- Plaice in ICES division VIIe
- Plaice in ICES divisions VIIf & VIIg
- Plaice in ICES divisions VIIh-k
- Sandeel in ICES division VIa
- *Scyliorhinus canicula* and *Scyliorhinus stellaris* in subareas VI and VII
- Sole in ICES division VIIa
- Sole in ICES divisions VIIb & VIIc
- Sole in ICES division VIIe
- Sole in ICES divisions VIIf & VII
- Sole in ICES divisions VIIh-k
- Sprat in ICES divisions VIId & VIIe
- Whiting in ICES division VIIa
- Whiting in ICES divisions VIIe-k
- Whiting in ICES division Via
- Whithing in ICES division VIb
- Rays and Skates in ICES subareas VI & VII

When drafting its advice on Haddock in ICES division VIa and Herring in Celtic Sea and ICES division VIIj, STECF will be invited to take into account the following information:

Extracts of Council and Commission statements in 2009 concerning west of Scotland haddock and herring in the Celtic Sea and VIIj.

1. Haddock in EC waters of zone VIa

The Council and the Commission agree that until such a plan is adopted, it would be appropriate to set the TAC for this stock according to the same rule that applies to the stock of haddock in the North Sea, using the precautionary spawning biomass and the limit spawning biomass appropriate for this stock, and limiting inter-annual TAC variations to no more than 25%.

2. Herring in the Celtic Sea (Zone VIIhjk)

The Council and the Commission agree that until such a plan is adopted, it would be appropriate to set the TAC for this stock according to the following rule:

1. *For 2010 and subsequent years, the TAC is and should be set corresponding to a fishing mortality of $F_{0.1} = 0.19$.*
2. *If, in the opinion of ICES and STECF, the catch should be reduced to the lowest possible level, the TAC for the following year will be reduced by 25%.*

When drafting its advice on Plaice in ICES divisions VIId and VIIe, STECF will be invited to take into account the following information:

Advice provided for plaice in VIIe and for plaice in VIId for 2010 are substantially different, concomitant with the advice that these two stocks are biologically distinct. At present, these two stocks are managed under a single TAC which makes it impossible to independently manage each stock towards precautionary criteria or towards maximum sustainable yield. The Commission is considering proposing the separation of the VIId,e TAC into two separate TACs in order that separate biological objectives can be reached.

STECF is requested to advise whether such an approach is appropriate to attempt to achieve stock-specific biological objectives and if not, to advise (given current knowledge of stock identities and migrations) on an alternative approach to attaining the same goal.

STECF is requested to deliver its advice in July in the course of its review of ICES advice.

✓ **<u>Eco-Region 3:</u> Bay of Biscay and Iberian waters**

- DG Mare focal person: Rodrigo Ataide Dias, Unit C2
- Scientific advice would be delivered by ICES in June 2009
- Scientific advice would be reviewed by *ad hoc* STECF WG before its summer plenary
- Stocks of
  - *Galeorhinus galeus* in ICES subareas VIII, IX and X
  - Sole in ICES divisions VIIIa & VIIIb
  - Southern stock of hake in ICES divisions VIIIc & IXa
  - Megrim (*Lepidorhombus boscii* & *L. whifiagonis*) in ICES divisions VIIIc & IXa
  - Anglerfish (*Lophius piscatorius* & *L. budegassa*) in ICES divisions VIIIc & IXa
  - *Scyliorhinus canicula* and *Scyliorhinus stellaris* in subareas VIII, IX and X
  - Southern horse mackerel (*Trachurus trachurus*) in ICES division IXa
  - Southern mackerel component of NEA mackerel (*Scomber scombrus*)
  - Sardine in ICES divisions VIIIc & IXa
  - Anchovy in ICES subarea VIII
  - Anchovy in ICES division IXa
  - Rays and Skates in ICES subareas VIII & IX

✓ **<u>Eco-Region 4:</u> Icelandic and East Greenland**

- **DG Mare focal person:** Véronique Angot, Unit C2
- Stocks of
  - Greenland cod
  - Icelandic cod
  - Icelandic haddock
  - Icelandic saithe
  - Greenland halibut
  - *Sebastes mentella* in ICES subareas V, VI, X, XII & XIV, NAFO subareas I & II
  - *Sebastes mentella*
  - Icelandic Capelin
  - Icelandic summer spawning herring

- ✓ **<u>Eco-Region 5:</u> The Barents Sea and the Norwegian Sea**

    - **DG Mare focal person:** Véronique Angot, Unit C2
    - Scientific advice would be delivered by ICES in June 2009
    - Scientific advice would be reviewed by *ad hoc* STECF WG before its summer plenary
    - Stocks of
        - Northeast cod
        - Norwegian coastal cod
        - Northeast Arctic haddock
        - Northeast Arctic saithe
        - Greenland halibut
        - *Sebastes marinus* in ICES subareas I & II
        - *Sebastes mentella* in ICES subareas I & II
        - Shrimp
        - Capelin

- ✓ **<u>Eco-Region 6:</u> Faeroe plateau ecosystem**

    - **DG Mare focal person:** Véronique Angot, Unit C2
    - Scientific advice would be delivered by ICES in June 2009
    - Scientific advice would be reviewed by *ad hoc* STECF WG before its summer plenary
    - Stocks of
        - Cod in ICES subdivision Vb1
        - Cod in ICES subdivision Vb2
        - Haddock in ICES division Vb (including extra catch option requested by Commission – see below)
        - Saithe in ICES subdivision Vb

<u>When drafting its advice on Haddock in ICES division Vb , STECF will be invited to take into account the following information:</u>

Extracts of Council and Commission statements in 2009 concerning haddock in EC waters of in EC waters of zone Vb.

<u>The Council and the Commission</u> agree that until such a plan is adopted, it would be appropriate to set the TAC for this stock according to the same rule that applies to the stock of haddock in the North Sea, using the precautionary spawning biomass and the limit spawning biomass appropriate for this stock, and limiting inter-annual TAC variations to no more than 25%.

- ✓ **<u>Eco-Region 7:</u> Black sea**

    - DG Mare focal person: Michaël Roitman, Stefanie Schmidt, Unit D2
    - Stocks of
        - Sprat in Black Sea
        - Turbot in Black Sea
        - Other Black Sea stocks (anchovy, mackerel, bonito, whiting and red mullet)

NB: if available data appear as insufficient to carry out the assessment, the request will be postponed and included in ToRs of the SG-RST 10-03.

- ✓ **Widely distributed and migratory stocks**

  - **DG Mare focal persons:** Jan Lindemann, Unit C2
  - Part 1
    - Scientific advice would be delivered by ICES in June 2009
    - Scientific advice would be reviewed by *ad hoc* STECF WG before its summer plenary
    - Stocks of
      - Northeast Atlantic spurdog
      - Northeast Atlantic portbeagle
      - Northeast Atlantic basking shark
      - European eel
      - Ling in ICES suareas I & II
      - Ling in ICES division Va
      - Ling in ICES division Vb
      - Ling in ICES divisions IIIa & IVa & ICES subareas VI, VII, VIII, IX, XII & XIV
      - Blue Ling in ICES division Va & ICES subarea XIV
      - Blue Ling in ICES division Vb & ICES subareas VI & VII
      - Blue Ling in ICES subareas I & II, ICES division IIIa & IVa, ICES subareas VIII, IX & XII
      - Tusk in ICES subareas I & II
      - Tusk in ICES division Va and Subarea XIV
      - Tusk in ICES division IIIa, ICES subarea IV, ICES division Vb & VIa & XIIb, ICES subareas VII, VIII, IX
      - Tusk in ICES division VIb
      - Tusk in ICES subarea XII excluding XIIb
      - Great silver smelt in ICES division Va
      - Great silver smelt in ICES subareas I & II, ICES division IIIa, ICES subarea IV, ICES division Vb, ICES subareas VI, VII, VIII, IX, X, XII & XIV
      - Orange roughy
      - Roundnose grenadier in ICES division Vb, subareas VI & VII, ICES division XIIb
      - Roundnose grenadier in on the Mid-Atlantic ridge
      - Roundnose grenadier in ICES division IIIa
      - Roundnose grenadier in all other areas
      - Black scabbard fish in ICES divisions Vb, XIIb and subareas VI and VII
      - Black scabbard fish in ICES subareas VIII and IX
      - Black scabbard fish in other areas
      - Greater forkbeard
      - Alfonsinos / Golden eye perch (*Beryx* spp.)
      - Read seabream in ICES subarea IX
      - Red seabream in ICES subarea X (Azores)
      - Red seabream in ICES subareas VI, VI and VIII

- Portuguese dogfish and leafscale gulper shark in ICES subareas I-XIV
- Kitefin shark in ICES subareas I-XIV

When drafting its advice on Deep Sea species, , STECF will be invited to take into account the following information:

STECF should comment to what extent new data from the commercial fishery has been taken into account for the advice, and how this new data has influenced the advice.

1) General advice to consider reduction of catches of deep sea species

As a new element of the advice summary, ICES often advises that additional reductions of catches should be considered. For this, ICES provides three different strands of arguments: bringing the fishery towards MSY, lack of data that would show the sustainability of the fishery, and the specific vulnerability of deep sea species to fishing activity.

The Commission is trying to design rules that will make it easier and more foreseeable to translate inconclusive scientific advice into management measures (see annex IV of Communication COM (2010)241 final – categories 6 to 9). STECF is asked to identify cases where the information available in the assessment which has caused the scientific opinion above allows applying any of these rules to the stocks.

2) Blue ling in ICES division Vb and subareas VI and VII

Extracts of Council and Commission statements in 2009 concerning Blue ling

> The Commission takes a note of relevant scientific information regarding the stock of blue ling (areas VI, VII). It will submit this information to the relevant scientific bodies to assess if the new information would give rise to modify allocations for this stock during 2010.

a) According to a statement made at December Council 2009, the Commission has to ensure that new scientific in formation available on blue ling will be fed into the stock management process: A series of French tally book data were submitted to ICES and analysed in the WG-DEEP working group. STECF is requested to give a view on the robustness of this data and on the extent to which it has improved ICES' scientific advice.

b) ICES advice is composed of a number of elements which are not ready for use in management:

-no direct fishery

- limitations of by-catches

- consider reduction in catches in order to be consistent with MSY

- maintain existing and introduce new area closures to protect spawning aggregations.

ICES considers this advice to fall into category 6.

STECF is requested to class the stock of blue ling according to the following table (taken from chapter 1.2.4 to which ICES refers) and advise on the corresponding catch:

	No overfishing	**Overfishing or Unknown**

		Exploitation Status
Decreasing stock trend	Reduce catch from recent level at rate of stock decrease	Reduce catch from recent level at rate greater than the rate of stock decrease
Stable stock trend	Maintain catch at recent level	Reduce catch from recent level
Increasing stock trend	Increase catch from recent level at rate of stock increase	Maintain catch at recent level

c) Following suggestions in the advice, the Commission is considering a rearrangement of TAC areas as follows:

TACs status quo	TACs revised 2011 2012
EC and international waters II, IV, V DK, DE, IE, FR, UK, Others	EC and international waters II, IV_____ DK, DE, IE, FR, UK, Others
VI, VII DE, EE, ES, FR, IE, LT, PL, UK, Others	VI, VII, *EC waters Vb, XIIb* DE, EE, ES, FR, IE, LT, PL, UK, Others

STECF is requested to confirm, if appropriate, that such a rearrangement would facilitate stock management in accordance with scientific advice.

3) Ling in ICES division Vb

STECF is asked to verify the classification in the "policy category".

4) Greater silver smelt in ICES subareas I & II, ICES division IIIa, ICES subarea IV, ICES division Vb, ICES subareas VI, VII, VIII, IX, X, XII & XIV

STECF is requested to advise whether data analysis suggests decreasing stock trend, thus putting the stock in category 9 rather than 11.

ICES states that improved data sampling from EU fisheries would be beneficial. STECF is requested to advise whether there are any shortcomings in obligatory data sampling (data collection framework) concerning this stock.

5) Roundnose grenadier in ICES division Vb, subareas VI & VII, ICES division XIIb

a) Following suggestions in the advice the Commission is considering a rearrangement of TAC areas as follows:

TACs status quo	TACs revised 2011 2012
VI, VII, EC waters Vb DE, EE, IE, ES, FR, LT, PL, UK, Others	VI, VII, *XIIb,* EC waters Vb DE, EE, IE, ES, FR, *LV*, LT, PL, UK, Others

7.5. Annex V - Measures employed in Scotland under the management plan for cod stocks Article 13 provision during 2009 – 'Conservation Credits'

Measures employed in Scotland under the management plan for cod stocks Article 13 provision during 2009 – 'Conservation Credits'

A summary by Marine Scotland Science

Introduction

The use of real time closures as a management measure to avoid unwanted cod catches were introduced in Scotland in 2007. During 2008, provisions in the December Council Regulation enabled member states to trial schemes which reduced cod mortality without further effort reductions. In Scotland the Conservation Credits Scheme was established involving industry, NGOs, scientists and government officials. The Real Time Closure (RTC) Scheme was expanded and a number of gear measures proposed. STECF reviewed the progress of the scheme in November 2008 concluding that the RTCs offered promise but there were too few in 2008 (15) and that the scheme would need to be expanded considerably and the gear measures actually adopted by fishermen.

The Council Regulation applying in 2009 continued with the provision for Member States to employ alternative measures under Article 13 so long as they delivered equivalent fishing mortality reductions to those specified in the management plan for cod stocks (Council Reg. 1342/2008)).

This document summarises various aspects of the expanded Conservation Credits scheme which continued in Scotland during 2009. Scotland's fleet mainly operates in two regions covered by the cod plan namely North Sea and West of Scotland where the required fishing mortality reductions in 2009 were both 25%.

Measures in 2009

The Conservation Credits Steering Group agreed to an expanded Conservation Credits Scheme in 2009 with the main objective of meeting the management plan for cod stocks targets. The starting point was a 25% cut in effort from the 04-06 baseline. The scheme then operated with two components:

i) compulsory part involving full observance by all vessels of RTCs. Following the STECF recommendation these were scaled up by approximately 10 times. Based on the 2008 performance it was estimated that 150 closures could deliver the first 11% of the required mortality reduction and days were granted back to vessels in line with this.

ii) The second part of the scheme was voluntary, involving options to take various selective gears or to observe additional spatial measures – amber zones.

Some vessels also qualified for derogations specified in Article 13. The detailed rules are set out in Appendix 1.

Outcomes in 2009

This section describes some of the out-turn results occurring in 2009. These consist of commentary on some of the individual measures comprising the scheme including, where possible, efforts to quantify effects. This is followed by observations made of the fisheries during the year - notably observations on discards and catch tracking.

Real Time Closures (RTCs)

a) RTC implementation

As a key element for delivering cod avoidance, an effective system for ensuring rapid identification and implementation of RTCs was essential. During 2008 the triggering of RTCs had relied on boardings of vessels by fisheries inspectors and estimates of the catch rate of cod. It was not possible in 2009 to deploy resources sufficient to enable a 10 fold increase in RTCs identified by inspections alone. Instead a method was devised utilising landings data linked to VMS information to give estimates of LPUE (landings per 'ping'). The approach is described in detail in Holmes et al (2009) and basically delivers an ongoing routine for identifying RTCs so that at (usually) between 9 and 12 are in place at any one time. A fully integrated management procedure was developed to allow identification, notification and monitoring. Figure 1 shows the overall distribution of RTCs in 2009. There were 144 implemented. Note that each closure lasted 21 days and the basic size was 7.5 nm x 7.5nm. When appropriate, the shape of the RTC was adjusted to better match the perceived distribution of cod (for example to align better with the shelf edge or to align with underwater pipelines where fish aggregate).

The general distribution of the RTCs corresponds very well with cod distribution shown in ICES IBTS surveys and also with the distribution of highest cod catch rates as shown in observer trips on board commercial vessels.

b) Analysis of landings

A simple measure of the contribution to cod avoidance is given by a comparison of the landings of vessels operating in the areas which subsequently become RTCs with the landings by the same vessels in the period immediately following the establishment of the RTC when they have moved away. Assuming that if they had continued fishing in the RTC they would have continued to catch similar quantities of fish (in the short term at least) then savings accrue if the vessel moves to areas where the catch rate is less. The greater the differential between the RTC catch rate and the new location the greater the saving. Results in Table1 show quarterly and annual estimates of catch 'savings' arising from vessels that move away from areas designated as RTCs. Savings are greatest in the North Sea where the majority of closures occurred. Overall the landings saving amounted to around 430 tonnes which, when raised to reflect the discard rate, amount to just over 700tonnes.

This quantity is less than was predicted would be delivered but it should be noted that the analysis so far takes no account of vessels which simply avoid RTC areas completely so that the 'real effect' of the presence of RTCs may be much greater than implied by the calculated quantities.

c) Analysis of fishermen's behaviour

Another approach used to analyse the effect of RTCs relies on spatial behaviour of fishermen and involves the consideration of movements of individual vessels in response to RTCs. Appendix 2 describes the method which relies on the establishment of a relative cod index of abundance across the North Sea informed by survey and observer data. VMS data are then analysed from individual fishing trips to establish whether vessels move away from RTCs to

areas of lower cod abundance or to areas characterised by generally high cod abundance. Results in Table 2 (taken from Appendix 2) summarise the findings. These show that significant movements away from RTCs to areas of low abundance could be identified in quarters 1 and 3 (for boats in RTC areas prior to closure) and that there was no evidence of movement either towards or away from RTCs after re-opening. Instances of vessels in RTCs *during* closures were nearly always confined to foreign boats.

Spawning closures and amber zones

Analysis of the effects of the few small spawning area closures suggested that, based on observed landings from these areas in previous years, that their closure contributed only a small amount to reduced cod catches. Similarly, analysis of the optional 'amber zone' closures suggests these had only a limited impact on cod avoidance. One reason was that vessels signed up for this option which previously had little history of operating in areas which subsequently became defined as amber zones, continued to operate in areas away from the zones. In other words, their activities had previously not impacted much on cod and continued not to have much effect.

Gear Measures

The steering group encouraged development of cod avoidance measures involving selective gears of various types. This was achieved in conjunction with industry and several working meeting were held to identify a suite of gear options offering choices to whitefish (TR1) vessels and Nephrops (TR2) vessels.

In particular, trials (numbers in parenthesis below) were conducted to: i) improve selectivity in TR1 gears through larger meshes generally, square meshed panels SMPs (1) and the introduction of very large meshed panels eg 300mm - 600 mm in the belly of nets (2); ii) SMPs in TR2 Nephrops gears (2) and iii) grids based on the 'Swedish Grid'(3). Trials were carried out by Marine Scotland Science gear technologists using chartered commercial vessels and results from 2009 are being reported in Laboratory reports and submitted to peer reviewed journals where appropriate.

An example of the kind of work and results is given in Figure 4. Based on the relative performance of the different gears in avoiding cod capture, 'a schedule' of effort buy-backs were developed for vessels opting to use one of the options. At this stage, establishing a true 'worth' for each of the gears is not possible.

Table 3 provides a summary of the gears being used in 2009 and 2010 and the numbers of vessels involved. Numbers are still low but are increasing and represent a major improvement on 2008 when none of the options were taken up. Disappointingly, no vessels are so far using the grid option although interest is growing.

Discards

Although it is almost impossible to estimate the individual contributions of Conservation Credits measures in the reduction of unwanted cod catches, there are nevertheless key out-turn metrics that provide an indication of the net effect.

Observations of changes in discard rates provide a key indicator of the aggregate effect of the measures employed to encourage cod avoidance. Figures 5 and 6 show the numbers of observed trips for Scottish vessels using TR1 gears and TR2 gears respectively. Additional sampling (red bars) in 2008 and 2009 has been possible through additional observers employed to assist the monitoring of Conservation Credits measures generally. Appendix 3 and 4 provides additional details.

Figure 7 shows the results by quarter for the TR1 gears in the North Sea (blue) and west coast (red). In the case of the North Sea there has been a marked reduction in discard rate (expressed in terms of either kg/haul or % discarded. Overall annual change is from about 60% to 40% (early indications are that this reduction has carried on into 2010 also). The increased TAC in 2009 can explain part of the reduction but the drop in discard amount is more than double the TAC increase so other factors have been involved. On the west coast there is also a reduction in TR1 discards but this is not so obvious as in the North Sea.

Figure 8 shows the same type of plot for the TR2 gear (Nephrops in this case). In this gear the positive North Sea picture for TR1 gears is not repeated and some high discard rates (using either measure of discard rate) are recorded. Similarly, on the west coast, high discard % are observed but here the quantities of cod taken by Nephrops gears are very low.

Catch tracking

Ongoing monitoring of Scottish landings takes place routinely in accordance with management of the Scottish quota – the landings total available to Scotland. In order to inform on progress towards cod recovery targets it is necessary to monitor and track Scottish *catch* (including discards). This is achieved by applying the relevant discard rates for the TR1 and TR2 gears to the relevant landings for these gears and to build up a cumulative picture. The objective is to remain within the amounts of catch (ie landings + ICES estimate of international discard rate) implied by the ICES forecast and which is allocated to Scotland.

Table 4 summarises the monthly uptake of landings by the two gear types and adds in appropriate amounts of discards to provide a cumulative catch. Combining gears gives the Scottish catch.

Figure 9 illustrates the catch trajectory (solid black line + black hatching) against the target values required to meet the Scottish allocation of catch. Results suggest that in 2009 the total catch did more or less stay within the bounds implied by available Scottish quota + an allowance for discards equivalent to the ICES estimate of international discard rate *and* stayed well within the prediction of what was required to meet the management plan for cod stocks.

This contrasts markedly with Figure 10 where the discard rate was much higher in 2008 leading to a much higher catch uptake.

Overall, results suggest that a marked improvement (reduction) in discard rate in the TR1 gears has contributed significantly to a catch which is more in line with targets than was the case in 2008.

Preliminary analysis of Partial F

Calculation of partial F values provides a way of quantifying the contribution made by different countries or gear groups etc to the overall fishing mortality. In this case the overall F is taken from the 2010 BADAPT assessment used by ICES in its June 2010 advice. There is some uncertainty in this assessment and values may eventually be reviewed following the autumn surveys but for now provide a starting point for preliminary estimates of partial F.

It is also important to note that, strictly speaking, these values can give misleading results if not all countries submit a full set of landings and discard data. Similarly, if the overall TAC is not taken because some countries do not take their full quota, then this can distort the apparent share contributed by each country. Both these issues affect the estimates here. Areas of the table shaded grey signify countries with incomplete data.

Table 5 provides preliminary estimates of partial F. Overall assessment results suggest that despite the 25% effort cut applied under the management plan or the measures under Article 13, F has gone up in 2009 relative to 2008. This is the subject of discussion under the quality of assessment (see above). Of interest is the observation that amongst the countries supplying full data, the smallest increase in partial F arises in Scotland. Further examination of the table shows that this is achieved through the marked reduction in partial F attributable to discards where a roughly 25% reduction in partial F was achieved against an apparent background of generally increased F.

Clearly the uncertainty surrounding the assessment outcome will need to be cleared up before a definitive view on these partial Fs can be given but preliminary signs suggest that positive steps have been made in the right direction and suggest that measures employed by Scotland under Article 13 have contributed to reduced discard mortality. At this stage it is not possible to say which measures have contributed most to this reduction or indeed if it arises through a more general behaviour towards cod avoidance brought about by the Conservation Credits scheme.

Conclusions

a) A synthesis is presented of observations during Conservation Credits regime in 2009
b) It is not possible to evaluate fully the effects of individual measures although exploratory analysis of RTC information suggests that these have led to reductions in cod catch through changes in behaviour and fishermen moving to lower cod abundance areas.
c) There has been a marked reduction in North Sea cod discards in 2009 relative to 2008 largely through changes in the TR1 gears. TR2 discard rates remain disappointingly high and greater overall reductions could be achieved in these gears – possibly through the adoption of technical solutions.
d) The reduction in discards translates to a marked reduction in the contribution to fishing mortality, although at this stage uncertainties in the assessment and incomplete data from some countries confound the estimation process.
e) The positive direction of travel should be built on and the approach strengthened in order to further enhance cod avoidance. This is happening in 2010 with the agreement by the

Conservation Credits Steering Group to increase the size of individual RTCs by 4 times following recent analysis of cod tagging data which has provided new information of cod movement.

References

S. J. Holmes, N. Campbell, C. Aires, P. G. Fernandes, R. Catarino, N. Bailey & K. Barratt. 2009. Using VMS and Fishery Data in a Real Time Closure Scheme as a Contribution to Reducing Cod Mortality and Discards. **ICES CM 2009/M:13**

Table 1 Landings of cod by vessels associated with RTCs before closure, and during the closures. Differences are taken to indicate landings savings which are raised by the discard rate to indicate catch savings.

a) North sea

	Pre-RTC	During RTC	Difference	"Catch" difference
Annual	1791	1411	380	623
Q1	492	359	133	218
Q2	502	496	6	10
Q3	631	384	247	405
Q4	170	177	-7	-11

b)West Coast

	Pre-RTC	During RTC	Difference	"Catch" difference
Annual	336.38	285.27	51.11	83.8204
Q1	34.2	53.52	-19.32	-31.6848
Q2	140.72	64.19	76.53	125.5092
Q3	135.02	146.77	-11.75	-19.27
Q4	23.02	16.53	6.49	10.6436

c) Total

	Pre-RTC	During RTC	Difference	"Catch" difference
Annual	2127	1696	431	**707**
Q1	526	412	114	**186**
Q2	642	560	82	**135**
Q3	766	530	235	**386**
Q4	193	193	-1	**-1**

Table 2 Means of trip RCII differences, for different quarters (rows) and categories of event (columns). See text for details. Means which are significantly different to zero (according to the *t*-test results in parentheses) are highlighted in bold font.

	All	Before	During	After
All	**-0.006 (p = 0.0497)**	**-0.013 (p = 0.0023)**	**-0.014 (p = 0.0479)**	0.008 (p = 0.0785)
Q1	**-0.029 (p = 2e-04)**	**-0.033 (p = 0.0014)**	**-0.046 (p = 0.0378)**	-0.007 (p = 0.5613)
Q2	**0.012 (p = 0.0213)**	0.011 (p = 0.1689)	0.009 (p = 0.5039)	0.015 (p = 0.0713)
Q3	**-0.015 (p = 6e-04)**	**-0.025 (p = 5e-04)**	**-0.038 (p = 1e-04)**	0.004 (p = 0.5521)
Q4	0 (p = 0.99)	-0.005 (p = 0.397)	-0.005 (p = 0.6737)	0.01 (p = 0.2944)

Table 3 Numbers of vessels taking up gear Conservation Credits Gear options in 2009 and 2010

North Sea

2009	TR1		TR2	
	Orkney	4	smp	20
	130mm	9		
2010	TR1		TR2	
	Orkney	20	smp	21
	130mm	9		

Table 4 North Sea monthly uptake of landings, discard proportion and derived discards and monthly catch together with cumulative landings, discards and catch building towards the annual total for TR1 above and TR2 below.

TR1

year	month	land	%dis	dis	catch	cum land	cum dis	cum catch
2009	jan	632.201	**0.255**	216.665	848.865	632.201	**216.665**	848.865
2009	feb	406.196	**0.255**	139.210	545.405	1038.396	**355.874**	1394.271
2009	mar	533.722	**0.255**	182.915	716.636	1572.118	**538.789**	2110.907
2009	apr	761.122	**0.121**	104.851	865.973	2333.240	**643.639**	2976.880
2009	may	851.792	**0.121**	117.341	969.134	3185.033	**760.980**	3946.013
2009	jun	940.317	**0.121**	129.536	1069.853	4125.350	**890.516**	5015.866
2009	jul	1146.279	**0.396**	751.371	1897.651	5271.629	**1641.888**	6913.517
2009	aug	1080.031	**0.396**	707.947	1787.978	6351.660	**2349.835**	8701.495
2009	sep	727.670	**0.396**	476.978	1204.648	7079.330	**2826.813**	9906.143
2009	oct	332.455	**0.500**	332.522	664.977	7411.785	**3159.335**	10571.120
2009	nov	627.747	**0.500**	627.873	1255.620	8039.532	**3787.207**	11826.739
2009	dec	527.121	**0.500**	527.226	1054.347	8566.653	**4314.433**	12881.086

TR2

year	month	land	%dis	dis	catch	cum land	cum dis	cum catch
2009	jan	42.219	**0.360**	23.770	65.989	42.219	**23.770**	65.989
2009	feb	34.056	**0.360**	19.175	53.231	76.275	**42.945**	119.220
2009	mar	11.832	**0.360**	6.662	18.494	88.106	**49.607**	137.713
2009	apr	12.213	**0.703**	28.844	41.057	100.320	**78.451**	178.770
2009	may	14.255	**0.703**	33.667	47.922	114.575	**112.117**	226.693
2009	jun	23.462	**0.703**	55.409	78.871	138.037	**167.526**	305.563
2009	jul	37.002	**0.816**	164.287	201.290	175.039	**331.814**	506.853
2009	aug	44.970	**0.816**	199.666	244.636	220.009	**531.479**	751.489
2009	sep	19.933	**0.816**	88.500	108.433	239.942	**619.979**	859.921
2009	oct	22.776	**0.911**	232.589	255.365	262.718	**852.568**	1115.286
2009	nov	34.789	**0.911**	355.266	390.056	297.507	**1207.834**	1505.342
2009	dec	25.656	**0.911**	261.995	287.651	323.163	**1469.830**	1792.993

Table 5 Partial Fs (preliminary) calculated by partitioning Fs arising from 2010 ICES BAdapt assessment according to countries landings and discard quantities as a proportion of total. Note that greyed area covers countries not supplying their own discard data for which numbers are probably not representative

			Denmark	Scotland	Germany	E&W	Netherlands	Sweden	Norway	Belgium	France	Faroes	Overall
2008	landings	Mean (2-4)	0.079	0.083	0.025	0.026	0.016	0.011	0.053	0.010	0.021	0.000	0.324
	discards	Mean (2-4)	0.067	0.176	0.001	0.004	0.037	0.003	0.053	0.015	0.025	0.001	0.383
	catch	Mean (2-4)	0.146	0.259	0.026	0.030	0.054	0.014	0.106	0.025	0.045	0.001	0.707 *
2009	landings	Mean (2-4)	0.097	0.173	0.017	0.020	0.036	0.009	0.070	0.017	0.030	0.001	0.471
	discards	Mean (2-4)	0.072	0.131	0.003	0.009	0.026	0.004	0.039	0.010	0.017	0.000	0.311
	catch	Mean (2-4)	0.198	0.290	0.037	0.052	0.076	0.020	0.104	0.028	0.046	0.001	0.852 *
	% change	Discards	6.846776	-25.87188	162.561	147.4197	-29.67566	29.34129	-27.05169	-34.62792	-32.42208	-32.42208	-18.80093
	% change	catch	35.1125	11.95658	43.54007	72.56254	42.56866	39.80616	-1.754583	9.006858	2.246265	47.03046	20.63777

* from assessment

Figure 1 Distribution of RTCs in 2009

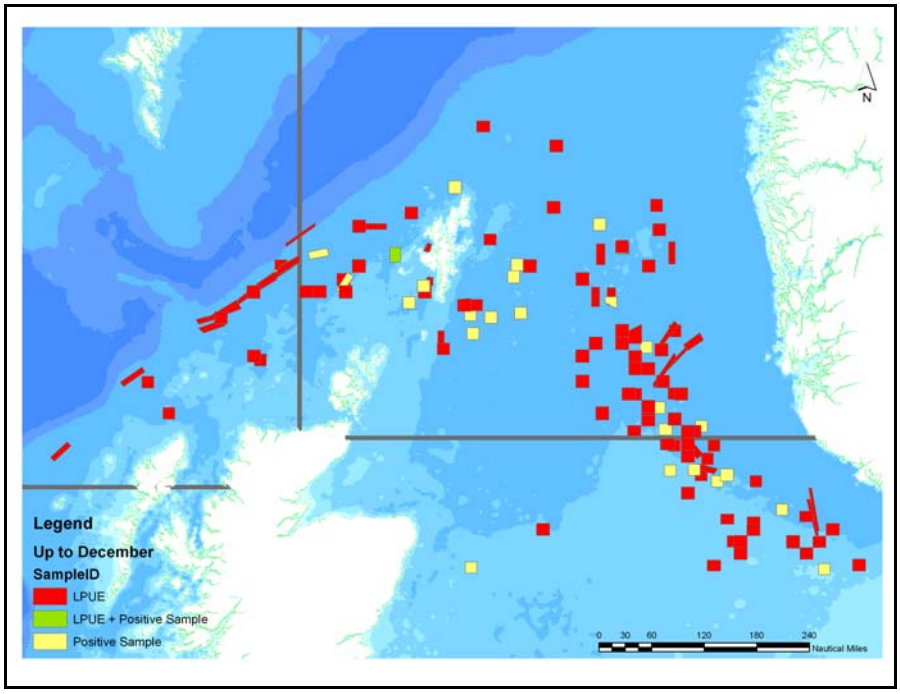


Figure 2 Relative abundance index for cod shown by month for 2008 and 2009

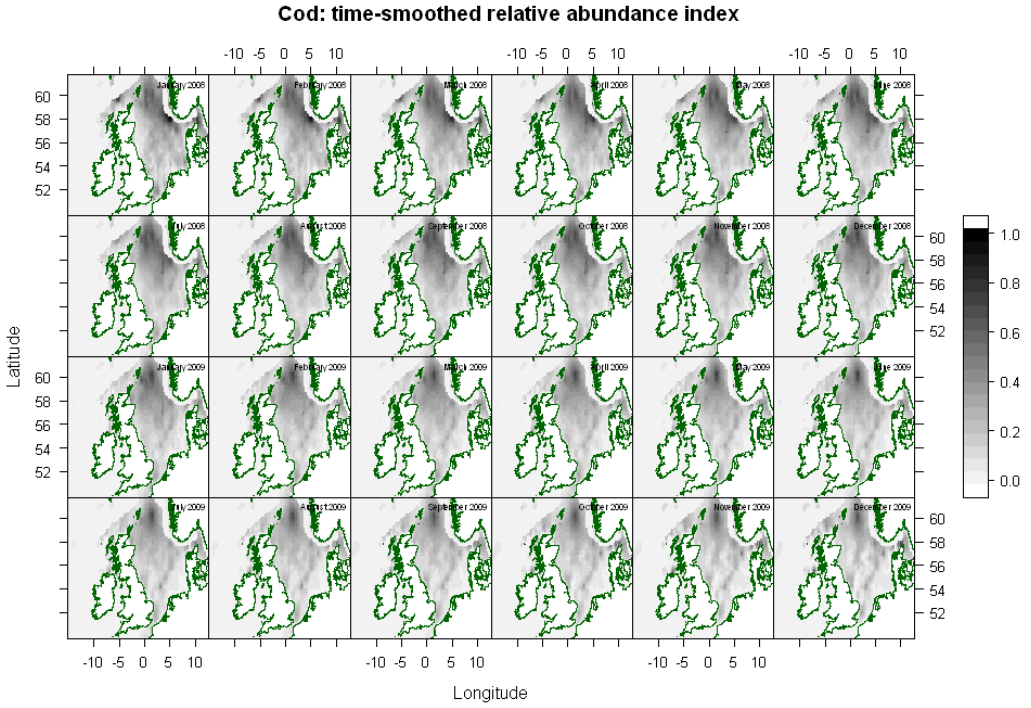


Figure 3 Individual track of vessel during one fishing trip. Red square shows position of an RTC) probably triggered by the vessel shown. Spawning areas are shown in blue.

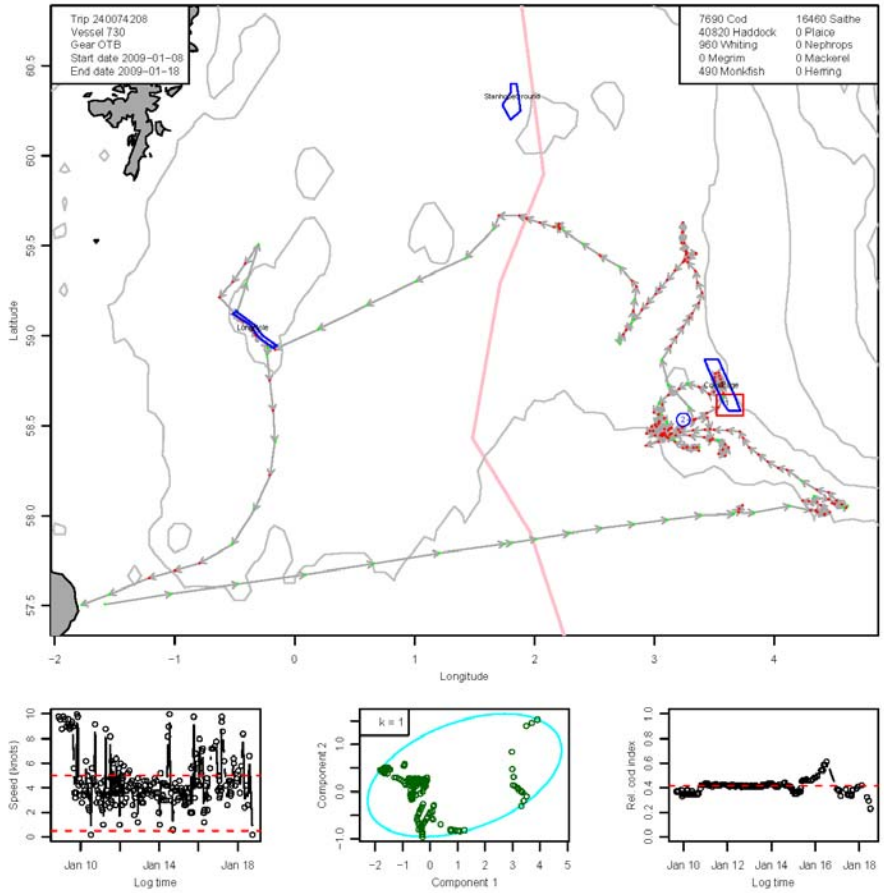
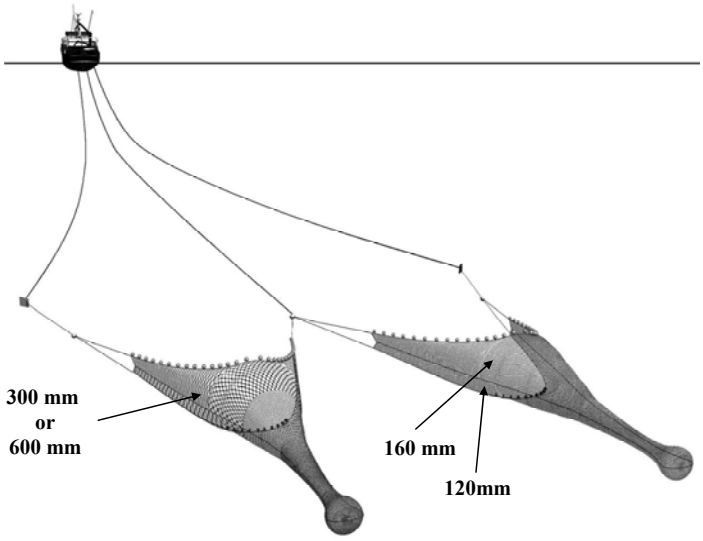


Figure 4 Gear trial work showing commercial vessel with test and control gear(top), twin trawl approach for investigating selectivity (middle) and relatively lower catches of cod in nets with larger meshed belly panels (bottom)



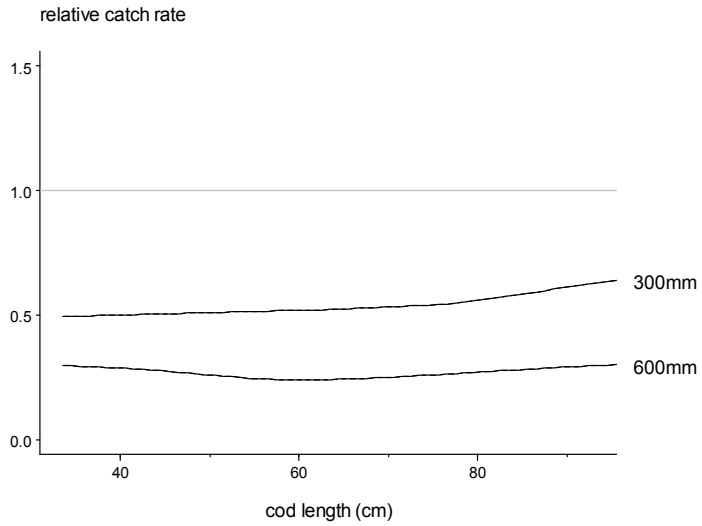


Figure 5 North Sea Observer trip numbers (red bars indicate SFF observers)

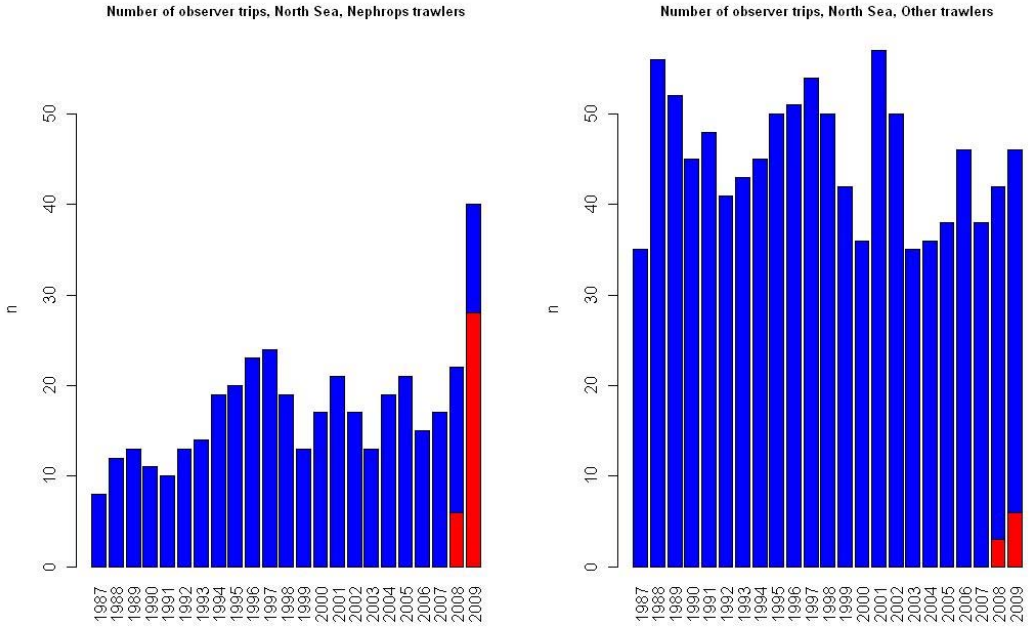


Figure 6 West Coast Observer trip numbers (red bars indicate SFF observers)

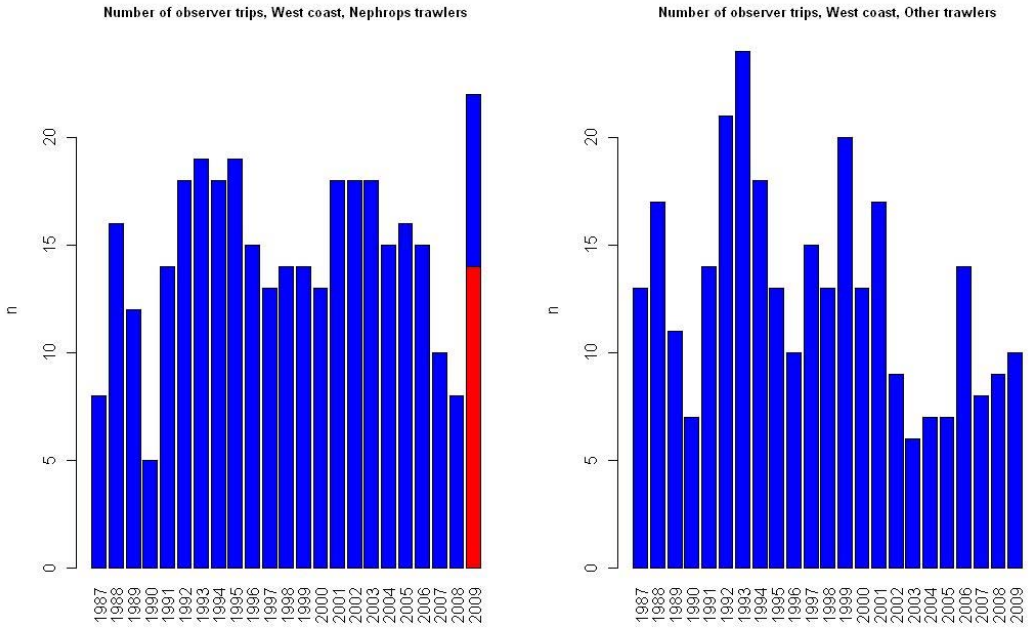


Figure 7 Observer results for TR1 gears in North Sea (blue) and west coast (red) showing discard rates expressed as kg/haul (left side) and % cod discarded of total cod (right side). Quarterly results 2008 and 2009.

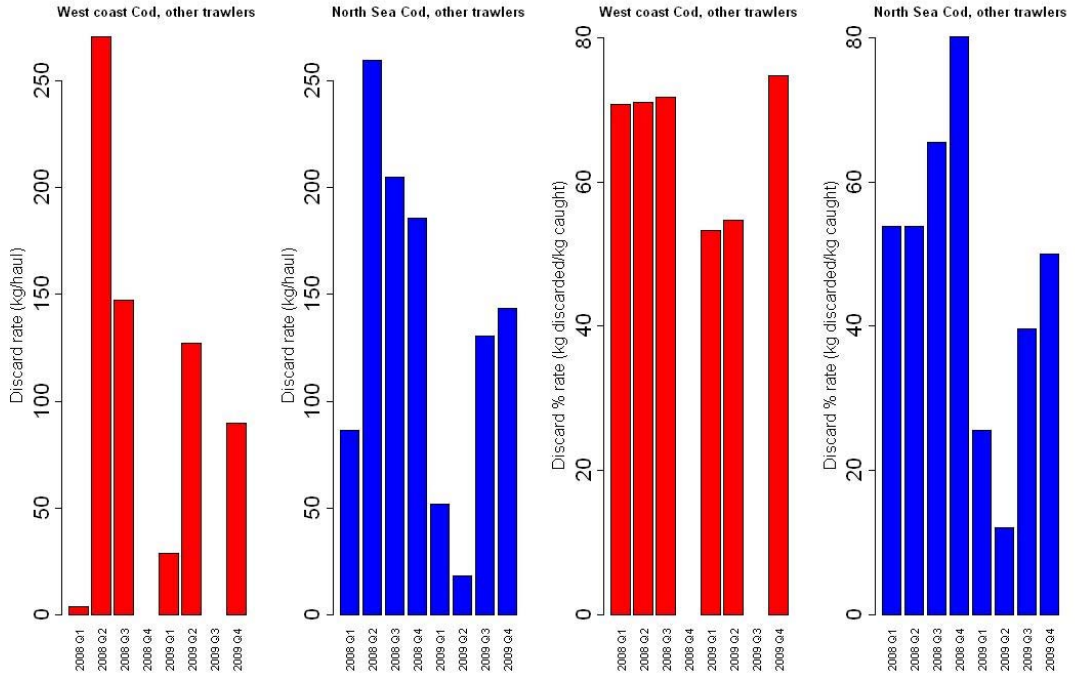


Figure 8 Observer results for TR2 gears in North Sea (blue) and west coast (red) showing discard rates expressed as kg/haul (left side) and % cod discarded of total cod (right side). Quarterly results 2008 and 2009

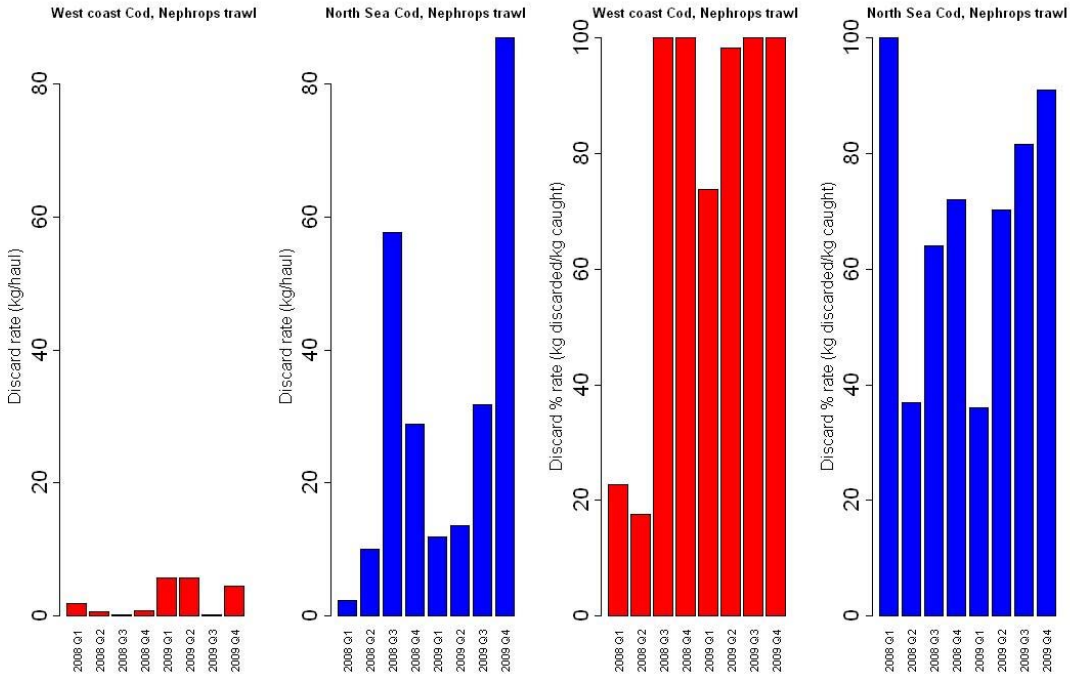


Figure 9 **Cod catch trajectory in 2009**. Horizontal shaded bands represent Scottish landings quota - pale blue - (based on producer organisation total), additional amount representing ICES prediction of international discard rate – dark blue- and overall 'Scottish catch' predicted by ICES forecast of cod recovery plan target –dark grey-. Solid black line represents landings uptake by Scotland , pale grey additional amount implied by international discard rate and hatched area the observed discards (as per Table 4)

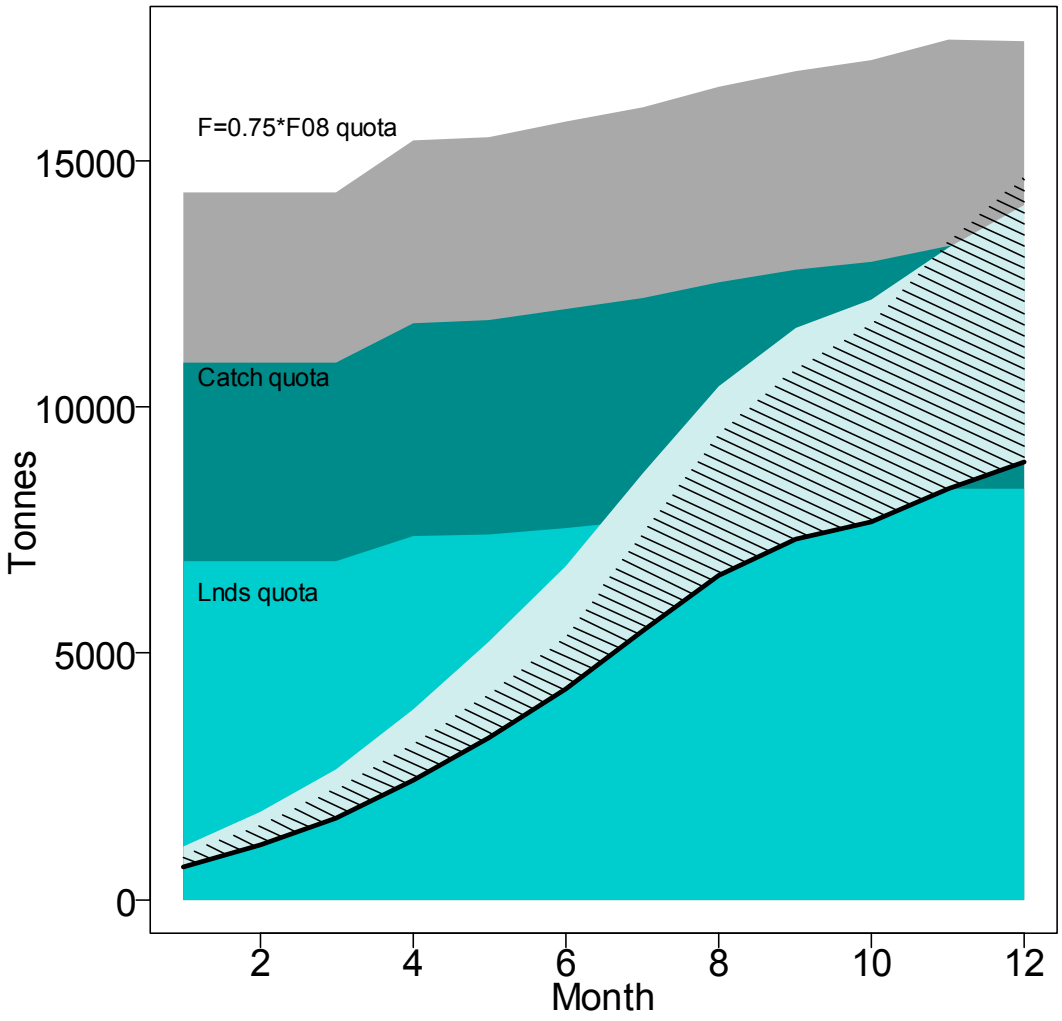
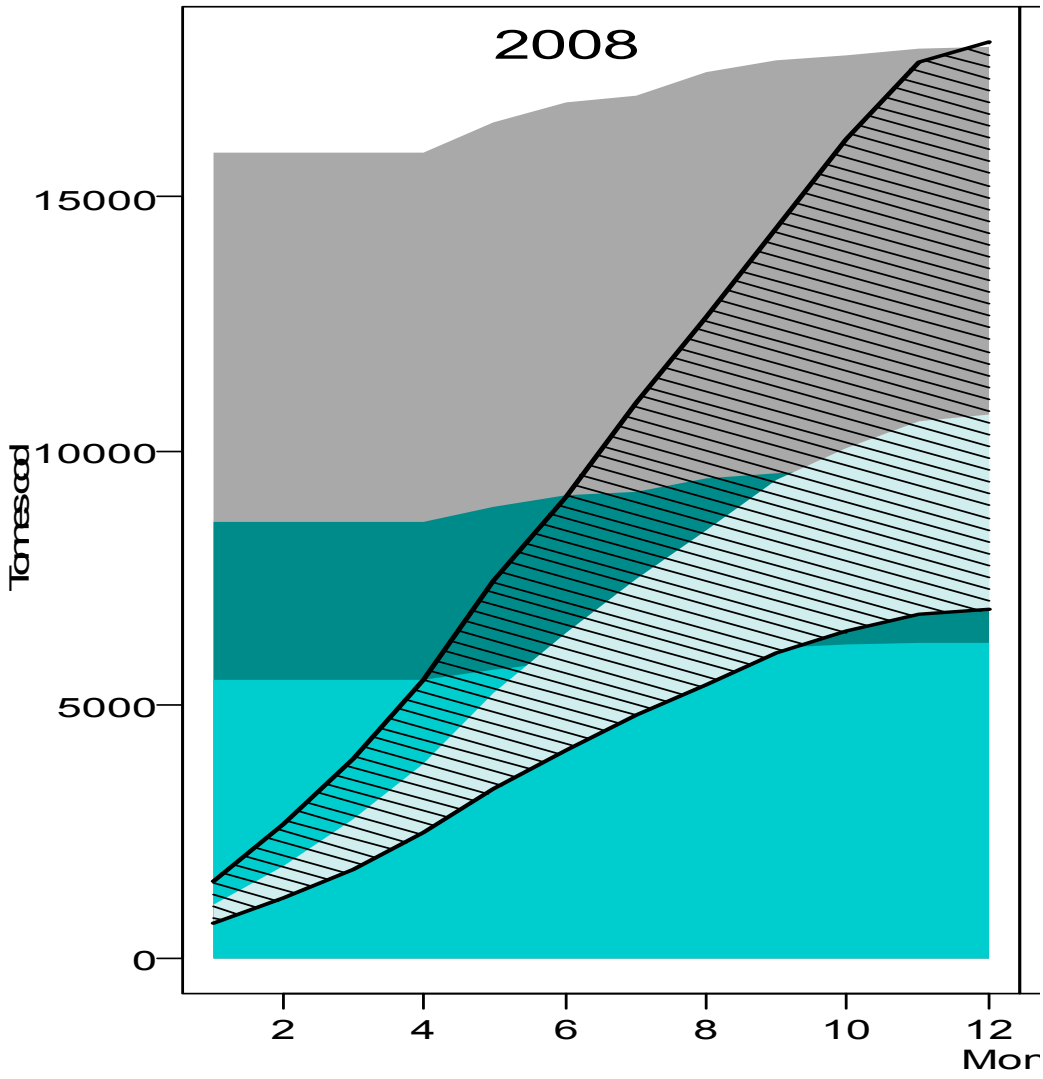


Figure 10 **Cod catch trajectory in 2008.** details as per legend above



7.6. Appendix 1 to Annex V

Scottish Government Conservation Credits scheme

Scheme rules

Version 1.0: issued 31 July 2009

Contents

Annexes

1. Purpose and revision

1.1 The purpose of these rules is to inform interested persons how the Scottish Government proposes to administer the days at sea regime for eligible vessels absent from port carrying regulated gears in the Cod Recovery Zone (CRZ). It seeks to provide a consolidated guide to the matters and arrangements most relevant to the operation of this regime.

1.2 These rules have been prepared by the Scottish Government in consultation with the Conservation Credits steering group. Where it appears to the Government that there is a need for revision, this will done in consultation with the steering group and a new version of the rules will be issued. New versions will be sent to skippers or their appointed representative and to other interested persons.

1.3 The rules do not attempt to provide a definition for every term used, nor a full background to the history or reasons for particular rules or arrangements. They are intended rather to be a practical guide to the day to day management of the scheme and the activities of relevant vessels. The meaning of many terms is well understood and it is assumed that readers will be familiar with the main features of statutory and other arrangements for sea fishing. In addition, many terms used here are already defined in EU and / or domestic regulations and to repeat those definitions would make this guide overly long. Where necessary, reference is made to regulations and other instruments.

2. Status

2.1 The rules describe the manner in which the Scottish Government proposes to fulfil its functions in administering the days at sea regime for relevant vessels. These rules still require to be read along with the relevant provisions of EU and domestic law.

3. Eligibility to carry regulated gears

3.1 The regulated gears are those categories of gear described at Article 4 of Annex IIA to EC Regulation 43/2009. In these rules we will refer to Regulation 43/2009 as "the 2009 Regulation".

3.2 Vessels will be eligible to be absent from port carrying categories of regulated gears in the CRZ where they have a record of fishing activity with those gears in the years 2001, 2002 or 2003.

3.3 Vessels eligible to carry gear category TR1 (whitefish gear) may carry any category of regulated gear.

4. Notification of intention to carry regulated gears: management periods

4.1 Before the first day of each management period, the master of a vessel or their representative must notify the effort management team which categories of regulated gear the vessel will carry in the forthcoming period.

4.2 A management period may be a period of one or more months.

5. Carriage of regulated gears of one category

5.1 Vessels may carry on board regulated gears of one category only.

6. Allocation of basic days at sea: flat rate and track record options

6.1 Upon receipt of an appropriate gear notification form, the effort management team will issue letters to eligible vessels that specify an allocation of days for the designated management period. These letters constitute a special permit to carry the specified regulated gears in the CRZ and should be carried on board at all times when absent from port and in the CRZ carrying regulated gears.

6.2 The Scottish Government will issue special permits to eligible licensed fishing vessels whose port of administration is in Scotland. Allocations of days will be made in respect of vessels. Allocations of days will not be made to licence entitlements not presently associated with a vessel.

Flat rate

6.3 Eligible vessels may receive a 'flat rate' allocation. The flat rates for basic allocations in 2009 are set out in Annex A. Vessels will receive an allocation of days in proportion to the duration of the management period notified – i.e. a vessel notifying a 6 month management period will receive half of the annual allocation.

6.4 Where a vessel notifies more than one category of gear, its allocation of days will be the average of the rates for the categories notified. Where a vessel notifies TR1 (whitefish) and another gear its allocation of days will be the average of two rates with a gear maximum for whitefish. The whitefish allocation of days will be the number of days that would have been allocated to a vessel notifying TR1 only less 60 days (or pro rata thereof for management periods of less than 12 months).

6.5 Where a vessel applies for an allocation of days in more than one sea area (i.e. for the West of Scotland and the North Sea) its allocation of days will be subject to an area maximum.

Track record allocation – the '85 per cent option'

6.6 Vessels notifying gear categories TR1 (whitefish) and / or TR2 (Nephrops) may, alternatively, apply for a basic allocation based upon 85 per cent of their average annual effort in the period 2004-07.

6.7 Where a vessel did not fish in one or more of the years between 2004 and 2007, the average will be based upon the years in which it did fish. In addition, where a vessel joined the fleet mid-year, the effort management team may consider averaging effort in that year on a pro rata basis. A track record allocation will not be made on the basis of fishing activity in one year only.

6.8 Vessels applying for a track record allocation that (are eligible to and) wish to notify both TR1 and TR2 will receive an allocation for each gear based on their average use with each gear, subject to a maximum of 100 days with TR1. It should be noted that vessels must apply for either the flat rate or a track record allocation for all categories of gear. They may not apply for the flat rate for one category of gear and the track record allocation for another.

6.9 All vessels receiving a track record allocation must keep and submit to the effort management team a record of all catches of cod, including discards, on a trip by trip basis. Records should be submitted directly to the effort management team.

6.10 Vessels receiving a track record allocation that carry on board TR1 gear must ensure that the cod end mesh size is 120mm or greater.

Track record allocation – the option to attribute kW days track records of associated licences

6.11 Vessels applying for a track record allocation may attribute to their track record the kW days track record of relevant CRZ eligible licences that are associated with the vessel making the application. Allocations (i.e. after the deduction of 15% from the average) will be subject to a maximum for all gears combined of 300 days.

6.12 An example illustrates the operation of the kW days track record option: A 200 kW vessel is licensed with licences from two 105kW vessels that it has replaced. Each of the replaced vessels had an average of 300 days at sea in the 2004-07 reference period - thus their combined kW day average is 63,000 kW days (31,500 + 31,500). The vessel now applying for a track record allocation may be allocated 85 per cent of the combined kW days track record –, 53,550 kW days, which is 267 days for the vessel with a 200kW engine.

6.13 It is anticipated that this option will be most relevant to new vessels, which will have incurred expenditure in acquiring and aggregating licences from CRZ eligible vessels.

6.14 The option will also be available to existing vessels that choose to aggregate licences with those on an already licensed vessel, but we do not anticipate that many existing vessels will wish to take it up. This is because the additional kW and tonnage capacity of licences will reduce to zero where those licences are aggregated with a vessel that is already licensed to its actual capacity. It is not possible to reinstate the kW and tonnage on to the licence entitlement if – in future – the licence holder sought to disaggregate it from the licences with which it had been aggregated.

7. Allocation of basic days at sea to vessels catching less than 5 per cent cod

7.1 Eligible vessels notifying gears TR1 and / or TR2 which, in 2007 and 2008, landed less than 2.5 per cent cod by weight may receive an allocation of 200 days at sea. Vessels that have no record of fishing with TR1 and / or TR2 in one of the years may qualify on the basis of activity in the year where there was fishing.

7.2 Alternatively, a vessel notifying these gears that landed 2.5 per cent or more of cod but less than 5 per cent cod will also be allocated more days at sea if they agree to fish exclusively south of latitude 59 degrees in the North Sea and outside both the 'Farn Deeps' and any amber avoidance areas (see section on Conservation Credits buy backs). For the purposes of the scheme, the 'Farn Deeps' will be the area defined in Annex B.

7.3 Vessels may qualify for this allocation separately with TR1 or TR2. Therefore, if a vessel's record of landings makes it eligible for the allocation in respect of one of the gear categories, then it may receive the allocation. A vessel that notifies both TR1 and TR2 and is eligible for the less than 5 per cent cod allocation for one gear but not the other will receive an allocation based on the average of the two relevant allocations. So, for example, a vessel fishing in the North Sea that qualifies for the allocation with TR2 but not TR1 will receive a basic allocation that is the average of 200 and 160, which is 180. Its allocation will be subject to the TR1 maximum described in paragraph 6.4 above.

7.4 A vessel will revert to the standard allocation(s) for the remainder of the scheme year for the gear categories notified if:

i. On one occasion it lands more than 2.5 per cent cod;

ii. An inspection or observation at sea records a catch of cod that is 5 per cent or more of the total catch; or,
iii. Having agreed not to, it fishes at any time fish north of latitude 59 degrees in the North Sea or within the 'Farn Deeps'.

The effort management team – in considering whether to return a vessel to the standard allocation(s) - will take into account the actual weight of fish landed.

8. Conditions of basic days at sea allocation

8.1 In addition to the scheme rules specified, allocations of days at sea are subject to mandatory conditions:

i. Vessels must comply with all Scottish Government Real Time Closures (RTCs) and seasonal closures; and, with any equivalent measures imposed by other UK Fisheries Administrations;

ii. North Sea vessels notifying TR2 (Nephrops) are required to insert a 110mm Square Mesh Panel (SMP) into the fishing gear carried on board while absent from port and in the CRZ if using mesh in the cod end of less than 90mm; and,

iii. Vessels will be expected, on request, to carry an observer.

8.2 Vessels notifying TR2 and fishing in the West of Scotland are subject to separate requirements in relation to gear that result from the provisions in the 2009 Regulation (specified in Article 6.5 of Annex III of the 2009 Regulation) about fishing in this area. These require the installation of a 120mm SMP. TR2 vessels fishing in the West of Scotland and complying with these requirements will – in doing so - also comply with Conservation Credits scheme rules. TR2 vessels fishing only in the North Sea need only comply with the rules described in the preceding sub-paragraph (ii) above.

9. Allocation of additional days at sea (Conservation Credits 'buy backs')

9.1 Vessels notifying gear categories TR1 and / or TR2 will receive an allocation of days at sea in addition to the basic allocation if they agree to undertake specified additional conservation measures. These additional days are not available to vessels notifying only one gear category and receiving an allocation of days at sea based on catching less than 5 per cent cod. These additional measures are optional and may be taken up for the duration of one or more management periods.

9.2 There are two types of Conservation Credits buy back option:

i. Fishing outside specified 'amber' avoidance areas (which are in addition to Real Time Closures and seasonal closures); and,
ii. Fishing exclusively with specified selective gears.

Amber areas

9.3 Amber areas are areas associated with cod abundance (although to a lesser degree than Real Time Closures and seasonal closures). Amber areas are identified for each quarter of the fishing year. Vessels that sign up to this option and undertake no fishing in these areas during a management period will receive additional days at sea.

Specified selective gears

9.4 Vessels that fish exclusively with a specified selective gear during a management period will receive additional days at sea.

9.5 The specified selective gears are:

i. The 'Eliminator trawl'. This option is available to TR1 vessels. A definition is at Annex C;

ii. The 'Orkney cod avoidance trawl'. This option is available to TR1 vessels. A definition is at Annex C;

iii. 130mm cod end: TR1 vessels carrying gear with cod end of mesh size 130mm or greater; or,

iv. Nephrops Square Mesh Panel (SMP): The insertion of a 120mm SMP of minimum length 3m in the straight extension of the net or a 130mm SMP in the taper. The SMP must be no further than 12-15m from the cod line (i.e. the rearmost row of meshes of the SMP shall be no more than 12m from the cod line). In the West of Scotland, the SMP must be 130mm. This option is available to TR2 vessels.

Amount of buy back

9.6 The number of additional days that will be allocated to vessels of different types in different sea areas is shown at Annex A. The days shown there are annual allocations.

Method of calculating allocations for vessels notifying two gears and taking up buy back options

9.7 Vessels notifying TR1 and TR2 that take up buy back options for one gear but not the other will receive an allocation based on the average of their allocations for each gear, including the relevant buy back allocation. So, for example, a North Sea vessel that notifies TR1 and TR2 and fishes exclusively with the Orkney cod avoidance trawl when using TR1 will receive an annual allocation of 174 days of which no more than 120 may be used with TR112.

9.8 Vessels notifying TR1 and TR2 that elect to take up a specified selective gear option for each gear will receive an allocation based on the average of each basic allocation plus the relevant buy back allocation. So, for example, a North Sea vessel that notifies TR1 and TR2 and fishes exclusively with the Orkney cod avoidance trawl when using TR1 and with the Nephrops SMP with TR2 will receive an annual allocation of 178 days of which no more than 120 may be used with TR113.

9.9 Vessels that have notified TR1 and TR2 and have received, in respect of one gear category only, the allocation of 200 days at sea associated with catching less than 5 per cent cod, may also be allocated additional days at sea for taking up one or more of the Conservation Credits buy back options in respect of the other gear category. Their allocation of days at sea will be the average of the 200 day allocation and the basic allocation for the

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12 Allocation = TR1 allocation (180) + TR2 allocation (168), divided by 2 = 174. TR1 maximum = TR1 allocation minus 60 = (180 – 60 = 120).

13 Allocation = TR1 allocation (180) + TR2 allocation (176), divided by 2 = 178. TR1 maximum = TR1 allocation minus 60 = (180 – 60 = 120).

other gear plus the buy back days. So, for example, a West of Scotland vessel that notifies TR1 and TR2; is eligible for the less than 5 per cent cod catch allocation with TR2 only; and, fishes exclusively with the Orkney cod avoidance trawl when using TR1 will receive a basic allocation of 192 days, of which no more than 124 days may be with TR114.

9.10 Vessels that receive a track record allocation and take up more of the Conservation Credits buy back options will have added to their allocation for each relevant gear the percentage additional allocation noted in the table in Annex A.

9.11 When a vessel volunteers to fish exclusively with a specified selective gear, Fisheries Officers will make arrangements with the vessel to inspect the gear so as to confirm that it conforms to the specification set out in the scheme rules.

9.12 Where two vessels that form a 'pair team' wish to take up one of the selective gear options then both vessels must sign up.

10. Transfers of days at sea

10.1 Transfers of days at sea are subject to controls

10.2 Some vessels may not transfer out days

i. Vessels will not be permitted to transfer any days if they have not, in the preceding two years, undertaken fishing activities above a minimum level. The minimum level is 40 days at sea in each year carrying regulated gear in the CRZ;

ii. Vessels that elect to take up one or more of the Conservation Credits buy back options may not thereafter transfer out any days. In applying this rule the effort management team will consider exceptional circumstances such as unplanned and lengthy repair work; and,

iii. Vessels that receive the allocation of days at sea associated with catching less than 5 per cent cod.

10.3 Vessels that may transfer out days are subject to limitations:

i. Transfers may only take place between vessels that have notified the same categories of regulated gears and within the same management period;

ii. The maximum cumulative transfer out of days from a vessel's allocation will be limited to 50 per cent of the basic (annual pro-rata) days at sea allocation of the donor or its average number of days at sea over the period 2001-2005 (excluding from this average days that were transferred in from other vessels), whichever is the lower; and,

iii. Vessels that receive a track record allocation may transfer days out and in, but only with other vessels that also receive a track record allocation.

10.4 Where a transfer takes place, the number of days received by the recipient will be adjusted in proportion to the comparative fishing capacity (measured in engine power) of the vessels involved.

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14 Allocation = TR1 allocation (184) + TR2 allocation (200), divided by 2 = 192. TR1 maximum = TR1 allocation minus 60 = (184 – 60 = 124).

10.5 Vessels that are ineligible to carry regulated gears in terms of section 3 may nonetheless transfer in days from eligible vessels. The transfer in of days by an ineligible vessel does not, however, confer any eligibility on the recipient.

11. Recording of time at sea: time at sea not counting against vessels' allocations

11.1 Days at sea may be administered in hours.

11.2 For the purposes of the scheme, a fishing trip will commence from the time a vessel records in its log book the commencement of the trip inside the CRZ. A fishing trip will be concluded when a vessel makes a landing or part landing, recording the landing in its log book. A fishing trip is also concluded where a vessel enters a designated landing port and notifies that activity to the UK Fisheries Call Centre on 0131 271 9700 or by email to ukfcc@scotland.gsi.gov.uk.

Transiting the CRZ

11.3 Time at sea in the CRZ will not count where the vessel is in transit to fish exclusively outside the zone, or exclusively to the west of the 'French line' (described at Annex D). Vessels wishing to transit in this way must call the UK Fisheries Call Centre on 0131 271 9700, by fax on 0131 244 6471 or by email to ukfcc@scotland.gsi.gov.uk prior to departure from port. All on board fishing gear must be lashed and stowed during the period of transit. This method may also be used by vessels wishing to transit from port to port, however it should be noted that in order for time spent at sea to be excluded from the uptake of their days at sea allocation, no fish may be carried on board while in transit.

11.4 Skippers should note that if they notify an intention to transit, fish outside the CRZ or the west of the French line and then fish inside the CRZ or – where applicable – to the east of the French line on return to port, all of their time at sea within the CRZ, including that spent transiting the zone on their outward journey, will be deducted from their allocation.

11.5As noted, time spent in the CRZ carrying regulated gear west of the 'French line' will not be deducted from a vessel's days at sea allocation, as long as the vessel in question has installed appropriate VMS that allows their position to be tracked and that the appropriate contact has been made with the UKFCC prior to departure.

Non-fishing activity

11.6 Time at sea will not count against a vessel's allocation where it is undertaking non-fishing related activity, provided that the vessel first notifies its intention to do so as well as notifying the nature of the activity. The vessel must surrender its special permit for the duration of the activity and must not carry fishing gear or fish on board.

Emergency aid

11.7 Time at sea will not count against a vessel's allocation where it comes to aid of another vessel in need of emergency assistance or because it was transporting an injured person for emergency medical aid.

12. Penalties

12.1 There will be a regime of administrative penalties. Annex D describes the penalties and the circumstances where the effort management team will consider their application.

Where the team is considering the application of a penalty it will notify the relevant persons in writing of the intention to impose the penalty, and the reasons for its possible application.

12.2 On receipt of this notification, the affected person may appeal. Appeals should be made to the address below and should state reasons. Where an appeal is lodged the effort management team will appoint a reporter – who will be an officer of Marine Scotland from outwith the effort management team – to consider the terms of the appeal.

Effort management team
Marine Scotland: Sea Fisheries Policy
Room 428
Pentland House
47 Robb's Loan
Edinburgh
EH14 1TY
31 July 2009

ANNEX A

ALLOCATIONS OF DAYS AT SEA 2009

Flat rate basic allocations of days 2009

		Days in sea areas			
Gear category	**Description**	**North Sea**		**West of Scotland**	
		Min	Max	Min	Max
TR1	Whitefish demersal trawls – equal to or greater than 100mm	160	192	164	188
TR2	Nephrops demersal trawls – equal to or larger than 70mm and less than 100mm	168	184	176	188
TR1 / TR2	Under 5 per cent cod catch allocation		200		200
TR3	Demersal trawls, Seines of mesh size equal to or larger than 16 mm and less than 32 mm		228		228
BT1	Beam trawls of mesh size of 120mm or greater		152		168
BT2	Beam trawls of mesh size equal to or larger than 80mm and less than 120mm		152		168
GN1	Gill nets and entangling nets, excluding trammel nets		140		140
GT1	Trammel nets		140		140
LL1	Longlines		172		172

Flat rate buy back allocations of days 2009

Area		**North Sea**		**West of Scotland**	
Gear category		**TR1**	**TR2**	**TR1**	**TR2**
Buy back options		**Additional days allocated**			
1. Spatial options	1.i. Avoid amber areas	8	8	0	8
2. Specified selective gears – whitefish (one option per vessel)	2.i. Eliminator trawl	24		24	
	2.ii. Orkney cod avoidance trawl	20		20	
	2.iii. 130mm or greater cod end	8		8	
3. Specified selective gears – Nephrops	3.i. Nephrops SMP		8		4

85 per cent option buy back allocations of days 2009

Area		**North Sea**		**West of Scotland**	
Gear category		**TR1**	**TR2**	**TR1**	**TR2**
Buy back options		**Additional days allocated (% reference period effort)**			
1. Spatial options	1.i. Avoid amber areas	5%	5%	0	5%
2. Specified selective gears – whitefish (one option per vessel)	2.i. Eliminator trawl	15%		15%	
	2.ii. Orkney cod avoidance trawl	12%		12%	
	2.iii. 130mm or greater cod end	5%		5%	
3. Specified selective gears – Nephrops	3.i. Nephrops SMP		5%		2.5%

ANNEX B

Definition of 'Farn Deeps'

The 'Farn Deeps', for the purposes of the scheme will be defined in terms of sequentially joining the following co-ordinates:

56.0000N 002.0000W
56.0000N 000.0000W
54.0000N 000.0000W
54.0000N 000.2068W

Then north along the mean low water mark to

55.7860N 002.0000W

ANNEX C

Definitions of specified selective gears

"The Eliminator trawl"

To qualify for the additional days associated with the use of the Orkney cod avoidance trawl, a vessel must use gear that has all of the following features:

- All top sheet wing netting sections to be made of diamond mesh netting of at least 600mm mesh size;
- All lower sheet wing netting sections to be made of diamond mesh netting of at least 600mm mesh size;
  The belly panel must be made of diamond mesh netting of at least 600mm mesh size. It must extend across the full width of the trawl, be attached directly to the fishing line and extend towards the rear of the net for at least 7.5m (stretched length); and,
- All top sheet netting directly above and forward of the belly panel must be made of diamond mesh netting of at least 600mm mesh size.

"The Orkney cod avoidance trawl"

To qualify for the additional days associated with the use of the Orkney cod avoidance trawl, a vessel must use gear that has all of the following features:

- All top sheet wing netting sections to be made of diamond mesh netting of at least 300mm mesh size;
- All lower sheet wing netting sections to be made of diamond mesh netting of at least 300mm mesh size;
- The belly panel must be made of diamond mesh netting of at least 300mm mesh size. It must extend across the full width of the trawl, be attached directly to the fishing line and extend towards the rear of the net for at least 7.5m (stretched length); and,
- All top sheet netting directly above and forward of the belly panel must be made of diamond mesh netting of at least 300mm mesh size.

ANNEX D

Co-ordinates of 'French line'

The French line is defined by sequentially joining the following co-ordinates:

60º 15' N 04º 00' W
60º 00' N 04º 50' W
59º 40' N 05º 30' W
59º 40' N 06º 05' W
59º 20' N 06º 30' W
59º 00' N 07º 30' W
58º 40' N 07º 40' W
58º 10' N 09º 00' W
57º 50' N 09º 20' W
57º 20' N 09º 20' W
57º 00' N 09º 00' W
56º 40' N 08º 55' W
55º 30' N 09º 20' W
55º 20' N 09º 50' W
54º 30' N 10º 35' W

ANNEX E

Penalties

This table note the penalties that the effort management team will consider imposing in different circumstances. The team will give consideration to any relevant exceptional circumstances.

Action	Penalty
Fishing in area of seasonal closure when in effect.	Deduction of 7 days.
Fishing in area of Real Time Closure when in effect.	Deduction of 5 days.
Carrying on board of more than one category of regulated gear.	On the first occasion, removal of administration of time at sea in hours. On the second and each subsequent occasion, deduction of 5 days.
Fishing in 'amber' avoidance area after notifying intention to fish exclusively outside any such areas.	On the first occasion, removal of administration of time at sea in hours. On the second occasion, deduction of days awarded in relation to avoidance of area in the management period, including any days used from that additional allocation.
Failure to fish exclusively with specified selective gear after notifying intention to so fish.	On the first occasion, removal of administration of time at sea in hours. On the second occasion, deduction of days awarded in relation to use of gear in the management period, including any days used, including any days used from that additional allocation.
Failure to accept an observer on board in response to a reasonable request.	On the first occasion, no penalty. On the second occasion, removal of administration of time at sea in hours. On each subsequent occasion, deduction of 5 days.

7.7. Appendix 2 to Annex V

Fleet responses to real-time closures

Coby Needle, Marine Scotland – Science

8th July 2010

Under the terms of the Conservation Credits scheme, a vessel which is fishing in an area (a real-time closure or RTC) that is closed during that fishing trip or shortly thereafter must move away and fish elsewhere for the 21-day duration of the closure. In this study, VMS position and speed data were used to identify such vessels for 2008 and 2009, and to estimate the average distances between the closed areas and the areas to which vessels move.

It is also important that we are able to determine whether such vessels have made a significant effort to move away from cod: if they simply move from an RTC to another area of high cod density, then the closure is unlikely to have a positive effect on overall abundance. Landings records can be used to evaluate this, but these may not reflect catch (and therefore abundance) very directly if discarding changes through the year.

To address this, a spatial monthly measure was generated of how prevalent cod are across the North Sea and West of Scotland (the Relative Cod Importance Index or RCII). This is based on information from research-vessel surveys and at-sea observations from commercial vessels which are interpolated between observation points and between months to provide a cod distribution index which changes smoothly with time and space. An example is given in Figure 1 (for January 2009) and 2 (for all months in 2008 and 2009), which (in common with earlier studies) demonstrate that cod are broadly concentrated in an arc around the northern North Sea.

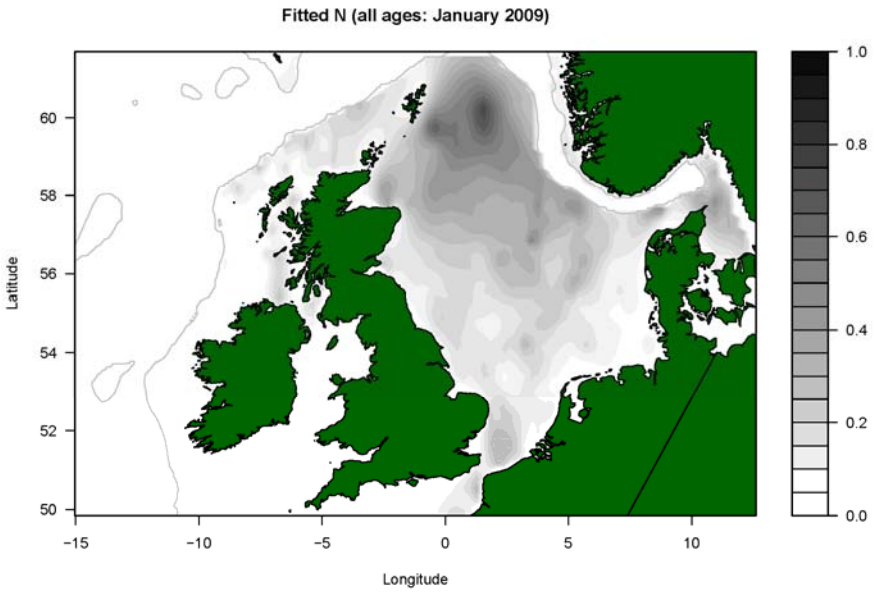

Figure 1. Maps of relative cod importance index for January 2009.

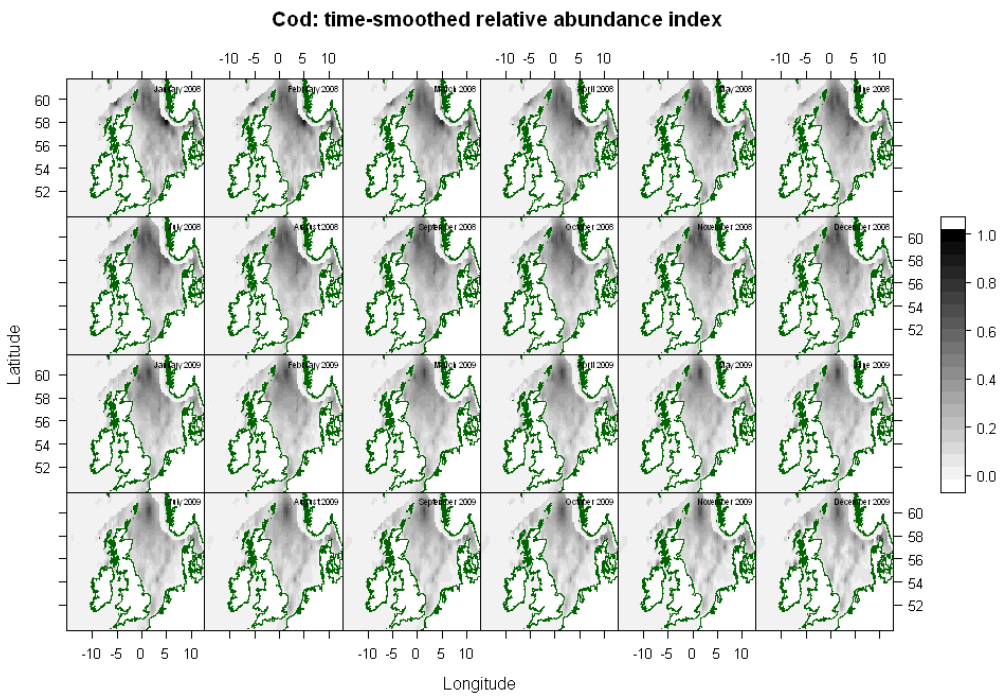

Figure 2. Maps of relative cod importance index for all months during 2008 and 2009.

Once the RCII is generated, it is possible to estimate the importance of cod in the area of the RTC at the time during which a vessel is fishing there, along with the importance of cod in the area to which that vessel subsequently moves. The difference between these two estimates can then be used to determine whether the vessel is moving away from cod or not. If the difference is negative, then the vessel would appear to be trying to move away from cod; if the difference is positive, the vessel seems to be moving towards cod (whether deliberately or not). This approach has been applied to the VMS data of all vessels landing into Scotland during 2008 and 2009.

Figure 3 summarises these differences for all vessels in the Scottish VMS database in 2009 that were observed to move away from the area of RTCs. This includes a number of international vessels landings into Scotland who would not necessarily alter fishing patterns to avoid Scottish closures, but the influence of these on the conclusions is not thought to be significant. Table 1 gives the mean of the differences, annually and for different quarters: the results cover not only vessels moving away from RTCs when they close (column headed "Before"), but also those fishing in RTCs during closures ("During" – mostly foreign vessels) and those that move back into RTCs when they are reopened ("After"). The means are tabulated along with results of *t*-tests which indicate whether the means are significantly different from zero. This shows that vessels did move away from cod in Q1 and Q3 of 2009, while there is not significant evidence for Q2 and Q4. No significant conclusion can be reached for vessels moving back into RTCs after reopening, while (as mentioned above) those fishing *in* RTCs while closed are generally foreign vessels which are not subject to the Conservation Credits regulations.

In conclusion: there is significant statistical evidence that Scottish vessels did move to areas of lower cod importance (as measured by the RCII) following closures of RTC areas, at least in two quarters of 2009. The evidence is inconclusive for the remaining two quarters, and for vessels moving back into RTCs when reopened. While this is a defensible result, it comes from a limited study which only considers those vessels fishing in the area of an RTC during the two weeks before or after its closure. The effect on the remainder of the fleet has not yet been evaluated. Furthermore, we have not yet considered whether the movements observed were unusual for the vessels concerned – the skippers may have been going to move away regardless of the RTC. This issue will need to be explored using longer time-series of individual vessel data.

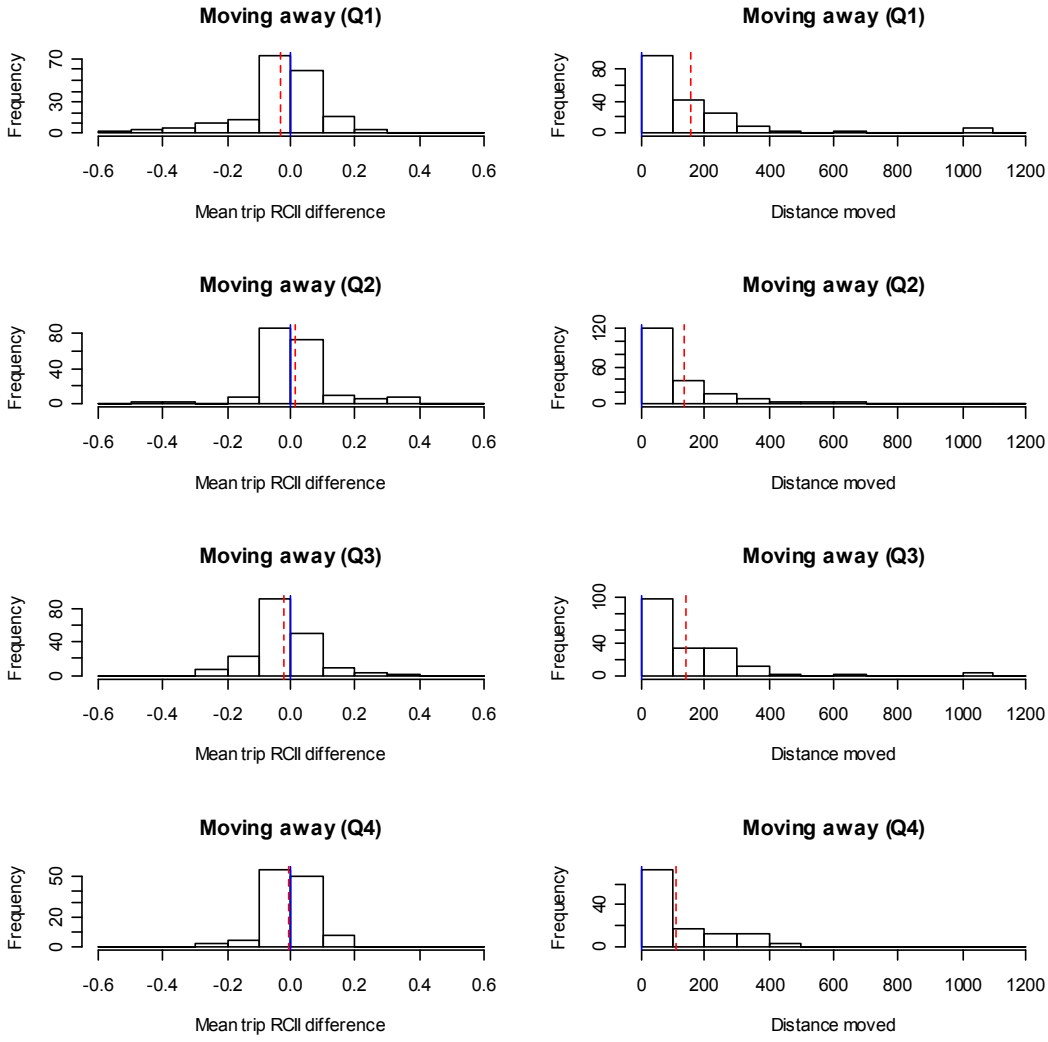

Figure 3. Histograms of RCII difference (left) and distance moved (right) for vessels fishing in RTCs immediately before closure. The mean values in each histogram are indicated by red dashed lines.

	All	Before	During	After
All	**-0.006 (p = 0.0497)**	**-0.013 (p = 0.0023)**	**-0.014 (p = 0.0479)**	0.008 (p = 0.0785)
Q1	**-0.029 (p = 2e-04)**	**-0.033 (p = 0.0014)**	**-0.046 (p = 0.0378)**	-0.007 (p = 0.5613)
Q2	**0.012 (p = 0.0213)**	0.011 (p = 0.1689)	0.009 (p = 0.5039)	0.015 (p = 0.0713)
Q3	**-0.015 (p = 6e-04)**	**-0.025 (p = 5e-04)**	**-0.038 (p = 1e-04)**	0.004 (p = 0.5521)
Q4	0 (p = 0.99)	-0.005 (p = 0.397)	-0.005 (p = 0.6737)	0.01 (p = 0.2944)

Table 1. Means of trip RCII differences, for different quarters (rows) and categories of event (columns). See text for details. Means which are significantly different to zero (according to the *t*-test results in parentheses) are highlighted in bold font.

7.8. Appendix 3 to Annex V

Not to be cited without prior reference to the author

Briefing note to the Sea Fisheries Policy Division of Marine Scotland

North Sea cod discards in the Scottish demersal fisheries: observer data update.

Paul G. Fernandes1 and Steven J. Holmes1.

Summary

- **Discard data from the Marine Scotland Science observer programme have been analysed up to 2009. The fleet of Scottish demersal trawlers in the North Sea, which has the greater share of cod landings, has reduced its discard rates of marketable cod (> 35 cm) considerably in 2009. Marketable cod discard rates from *Nephrops* trawlers have been slightly higher in 2009 relative to 2008, but are lower than 2007: however, landings from this component of the fleet are small. Discard rates of small cod have been reduced relative to the time series in both fleets.**

- **The net effect has been that estimated discards of cod in 2009 are much lower than the equivalent estimate in 2008 (5783 t in 2009 c.f. 8487 t in 2008).**

- **These data indicate that the total Scottish catch of cod was lower than that implied by the 25% reduction in fishing mortality as part of the long term management plan for cod in the North Sea.**

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Introduction

Table 1. Observer coverage in days for 2008 and 2009 by ICES sub-area and gear category.

	Area IV		Area VIa		Total
Year	Other trawlers	Nephrops trawls	Other trawlers	Nephrops trawls	All Trawlers
	Days				
2008	235	99	65	21	420
2009	272	270	59	93	694

Table 2. Observer coverage (number of trips) for 2008 and 2009 by ICES sub-area and gear category.

	Area IV		Area VIa		Total
Year	Other trawlers	Nephrops trawls	Other trawlers	Nephrops trawls	All Trawlers
	Trips				
2008	42	22	9	8	81
2009	46	40	10	22	118

FRS has operated a scientific observer programme since the mid 1970s, sampling discards of the main demersal species (cod, haddock, whiting and saithe) by Scottish fishing vessels. The aim of this programme is to estimate the quantity and the age composition of the discarded component of the catch. The Scottish data series is unique in Europe: it has been made available to ICES for stock assessment purposes for many years and latterly to STECF study groups to evaluate cod recovery measures. The objective of this note is to report on the trends and quantities of discards from the observer programme. The normal raising procedures have not been applied, because these are contingent on an age-based estimation procedure which, naturally, requires the ages to be read. Ages are not read until some time after the data are collected as there is a significant preparation lead in time and reading time.

It should be noted that no attempt is made here to report on precision. The EU TACs and quota regulation for fisheries in 2009 indicates that discards should be reported to within an accuracy of 20%. It is not clear that this is what is intended and what actually may be required is a precision of 20%. Accuracy is more generally considered to consist of both bias and precision. Bias measures the average difference between the discard estimates and the true discards, but the true discards are not known. The bias of the discard estimates can only be evaluated by extensive simulation, using tools that have not yet been developed. It is most likely that the 20% figure refers to a coefficient of variation which describes the precision of the estimate (if so, this is the same condition as required for discard estimates under the EU Data Collection Framework). This is possible to calculate, although in a complex sampling programme such as the observer programme, this calculation is not straightforward. MSS has tried to develop methods to estimate precision over several years, but the methods are demanding and resources had to be diverted to meet other objectives. In recent years this task has been co-ordinated at an international level through the EC funded COST project which concluded this year. COST produced a set of generic tools for European sampling programmes

including tools to estimate discards and the precision of these estimates. These tools are currently being evaluated and, where necessary, augmented for MSS sampling schemes and will hopefully be ready by the end of Q1 2010.

Methods

Demersal discard sampling is currently stratified by area, fishing gear and quarter. On each sampling trip every haul is monitored and length frequencies of all discarded species are obtained by sampling at least 60 kg of representative discarded material from each haul. Sample size may be greater if the discarded material consists of fewer but larger fish. Samples of the landed component of the catch are also measured and otoliths are obtained from samples of discarded cod, haddock, whiting and saithe. Currently, estimates of numbers at age discarded are calculated on an annual basis using a ratio estimator, raising observed data on the basis of reported fleet / species landings15. These estimates are made at the end of each year in accordance with the requirements of the EU Data Collection Framework (Council Regulation EC 199/2008). Observer coverage in terms of the number of observer days is given for 2008 and 2009 in Table 1.

In order for these updates to be as contemporary as possible, the quantity used to describe discarding is the percentage by weight of the demersal fish species discarded relative to the total catch in weight of that species: this has been termed the discard percentage rate D% (equation 1).

$$D\% = \left(\sum_{t=1}^{n} D_t \Big/ \sum_{t=1}^{n} C_t \right) \times 100 \qquad (1)$$

where:

D = discarded weight of species

C = catch weight of species

t = discard trip

In order to provide updates on a quarterly basis, this quantity has been calculated over all trips up until the current reporting quarter, for each year. In the current case, for example, providing updates up until and including 2009 Quarter 3, *D%* is reported for Quarters 1 to 3 in each of the years 1987-2009: data from Quarter 4 are removed from previous years because this is not available for 2009. This allows for the comparison between the latest data (2009 Q4) and previous years' data. More recent individual quarterly figures are also provided from 2008 Quarter 1 to 2009 Quarter 3 (including 2008 quarter 4).

The categorisation of gear has changed over the years. For the purposes of consistency, in this paper gears are divided into two categories: 1) *Nephrops* trawlers; and 2) all other trawlers (targeting demersal fish). No attempt has been made to stratify within these categories according to mesh size, although these largely conform to TR2 and TR116 categories respectively.

For cod, the percentage overall discard rate in these two categories, was applied to the total monthly landings [of the two categories] to determine the raised discard quantities in 2008 and 2009. The two categories' discards were then added to determine the total raised discard quantities. In cases where a monthly discard quantity is given, the quarterly discard rate is applied uniformly in each month of the quarter. In 2008 *Nephrops* vessels sampled in Q1 were observed to discard 100% cod. This discard rate is clearly not representative of the whole fleet category, as there were landings recorded in Q1 (i.e. discards could not have been 100%). In order to deal with this, the 100% figure was replaced with a mean of the percentage rates from the first three

15 'raising' is the process by which information on the observed numbers of discarded or landed fish in a sample is inflated to give an estimate of the numbers discarded or landed for the fleet as a whole

16 TR1 = Trawl and demersal seine nets with mesh greater than 100 mm; TR2 = Trawl and demersal seine nets with mesh less than 100 mm, but greater than 80 mm.

quarters of that year. The total discarded amount in 2008 from using this method of raising the discard data is compared to the total submitted to the ICES annual assessment working group.

The trajectory of cumulative discards is also compared to that given by applying the 2008 annual discard rate for the Scottish fleet as supplied to ICES (0.61) to all months of landings data. The comparisons for 2008 data are used to indicate how well the ICES estimates correspond to those made using the method presented here. This is necessary because an ICES estimate is not available for the current year (i.e. in real time), so the comparison gives an indication of the utility the catch trajectories in 2009 made using the raising method described here (Fig. 7) or estimated for the international fleet (Figs. 8 and 9).

In formulating their advice for the 2010 cod TAC, ICES made an assumption about the international discard rates of cod in 2009. Scottish fleet cod discards using the quarterly discard rates (D%) are compared to the discards that would be anticipated given the ICES' assumption on discard rate and the recorded landings so far this year. The comparison is made through a figure showing cumulative landings and cumulative discards (Fig. 9). ICES assumed the individual discard rates at age remain constant between 2008 and 2009 (ICES 2009, section 14.7). However, due to changes in population age structure the overall discard ratio (by weight) is different (in 2008 it was 0.44 and in 2009 it was forecast to be 0.37): for this work these values have been applied to the respective landings data by month.

Results

The discard percentage rate is reported by gear (*Nephrops* trawl and Demersal fish trawls) in years 1987-2009, in Tables 2 – 3. These are illustrated in Figures 1 to 4. Recent quarter information is provided in Figures 5-6.

Marketable cod discards (>35 cm) from *Nephrops* trawlers (Fig. 1) have been high in the last three years relative to earlier in the time series: in 2009 these were slightly lower than in 2008. Discard rates of small cod associated with this fleet have declined over the last three years. Demersal trawlers have reduced the discards of marketable cod in 2009 (Table 3 & Fig. 3). Discards of small cod (< 35 cm) by other demersal trawlers have been low in recent years (Fig. 4). Demersal trawlers have a much larger share of cod landings than *Nephrops* trawlers in the North Sea: in 2009: by quarter 3, *Nephrops* trawlers had landed 235 t of cod, whereas other demersal trawlers had landed 6977 t of cod. The high levels of discards in recent years relative to years prior to and including 2006 are considered to be due to the combination of the stronger 2005 year-class and more effective enforcement (post 2004) which means that fishermen are no longer capable of landing their fish illegally (see Park 2009). Recent quarter information (Figs. 5-6) reflect the annual trends, with decreases in marketable cod discards by other demersal trawlers.

Applying the percentage discard rate (Eqn. 1) to 2008 landings, gave similar total (raised) discard estimates to those calculated assuming discard rates used by the assessment working groups (Fig. 7 and Fig. 8, c.f. solid and dotted lines). This indicates that D% is useful to determine the raised discard quantities in 2009 where complete datasets are not yet available and traditional raising methods (e.g. by age) cannot be applied. These also indicate that a simple application of an annual discarding rate to monthly landings to obtain a trajectory of discards can be a reasonable basis for comparison.

Applying D% to 2008 landings data, up to and including quarter 3 in 2008 results in estimated discards of 8487 t; by comparison in 2009 by the same period, discards of cod were 2720 t (Fig. 7, solid lines). In addition, the estimate of discards in 2009 using D% is lower than that which

would estimated using the annual discard rate for the Scottish fleet as supplied to ICES (Fig. 7, c.f. black lines).

The estimate of discards in 2009 using D% is also lower than that which would estimated using the annual discard rate for the international fleet as supplied to ICES (Fig. 8, c.f. black lines). Conversely, in 2008, the estimate of discards using D% is higher than that which would estimated using the annual discard rate for the international fleet as supplied to ICES (Fig. 8, c.f. grey lines).

The trajectory of North Sea cod landings by Scottish vessels in 2009 is shown in Figure 9 (bold black line). This trajectory is compared to a 'Scottish quota' obtained by summing the quota allocated to Scottish producer organisations (POs); the lowest of the three solid blocks. The quota total can be seen to rise during the year because the POs buy in quota as a season progresses. The middle block represents a Scottish 'catch quota'. This was derived by using (as for Fig. 8) the North Sea cod stock discard rate calculated for the international fleet in 2008 as used by the ICES assessment working group (ICES 2009). The hatched area represents cumulative discards (using the raised discard observations for both the *Nephrops* and other trawlers). The upper bound of this hatched area represents a trajectory of estimated catch. The pale area underlying the hatched area represents a 'status quo' of cumulative discards, i.e. the discards that would occur assuming a discard rate equal to the annual average international fleet discard rate for 2008. Finally a third block (labelled "0.75*F08") shows the Scottish quota share of a catch of cod in 2009 predicted by ICES to achieve the desired 25% reduction in mean F for the stock in 2009 compared to 2008. This final block does assume that all mortality other than natural mortality at age values input to the assessment model is fishing mortality.

The information presented in Figure 9 indicates that up until the third quarter of 2009 at least, the total catch is lower than might be expected from ICES forecasts of catch. However, of more significance is the fact that the Scottish catch is also much lower than that implied for the 25% reduction in fishing mortality (F) as part of the long term management plan for cod in the North Sea.

References

Park, M. (2009). Dealing with Discards. ICES CM 2009/M:4. 16 pp.

ICES (2009). Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK). ICES CM 2009/ACOM:10.

Table 2. North Sea Cod, discard percentage rate, *Nephrops* trawl

	All	> MLS (35 cm)	< MLS (35 cm)
1987	8.5	0.0	8.5
1988	12.2	0.0	12.2
1989	54.7	1.0	53.7
1990	9.2	0.1	9.1
1991	14.9	0.5	14.4
1992	11.6	0.1	11.6
1993	20.4	0.4	20.0
1994	10.5	1.0	9.5
1995	12.8	0.4	12.4
1996	9.0	3.0	5.9
1997	23.2	0.4	22.7
1998	20.0	1.2	18.7
1999	22.9	0.4	22.6
2000	42.9	1.5	41.4
2001	30.6	1.0	29.6
2002	37.0	5.2	31.8
2003	37.2	9.2	28.0
2004	30.7	6.3	24.3
2005	29.1	8.9	20.2
2006	72.8	25.1	47.7
2007	86.2	68.0	18.1
2008	65.7	48.7	16.9
2009	52.5	46.5	6.1

Table 3. North Sea Cod, discard percentage rate, Demersal fish trawls

	All	> MLS (35 cm)	< MLS (35 cm)
1987	6.6	0.1	6.5
1988	6.9	0.2	6.8
1989	23.7	3.1	20.6
1990	12.8	0.9	11.9
1991	7.9	0.6	7.3
1992	6.2	1.2	5.0
1993	16.9	5.1	11.9
1994	12.7	1.0	11.7
1995	19.0	6.0	13.0
1996	7.8	1.8	6.0
1997	15.2	5.4	9.9
1998	21.1	5.3	15.8
1999	9.4	2.1	7.2
2000	10.2	1.8	8.4
2001	15.9	3.7	12.2
2002	4.2	1.3	2.9
2003	2.0	0.8	1.1
2004	7.4	1.7	5.8
2005	12.1	4.5	7.5
2006	11.5	4.7	6.8
2007	52.0	48.8	3.2
2008	63.9	61.4	2.5
2009	32.5	30.5	1.9

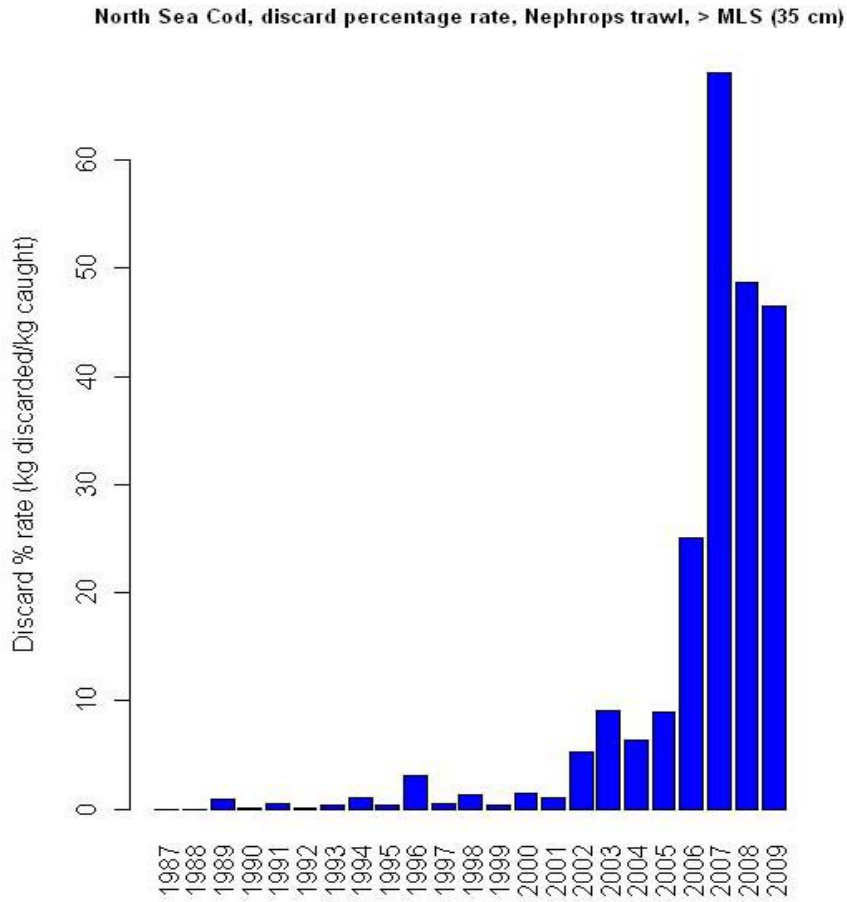

Figure 1. Discard percentage rate for North Sea marketable cod (>35 cm) by *Nephrops* trawlers from 1987-2009 Q1-Q4.

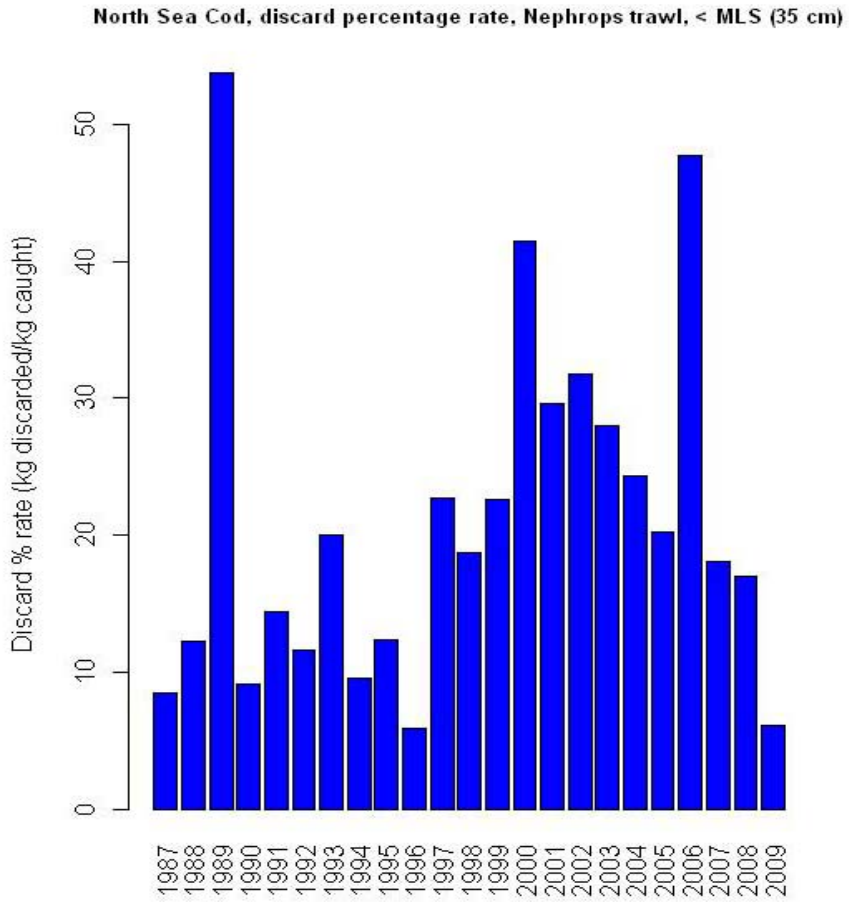

Figure 2. Discard percentage rate for North Sea small cod (<35 cm) by *Nephrops* trawlers from 1987-2009 Q1-Q4.

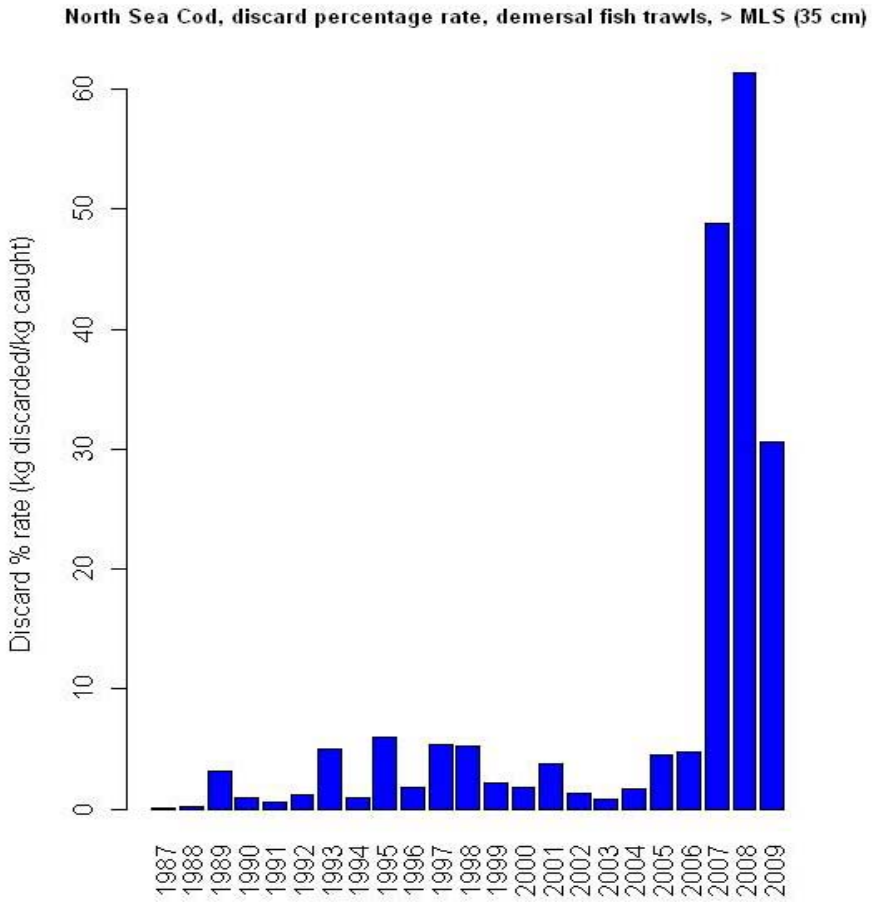

Figure 3. Discard percentage rate for North Sea marketable cod (>35 cm) by demersal fish trawlers from 1987-2009 Q1-Q4.

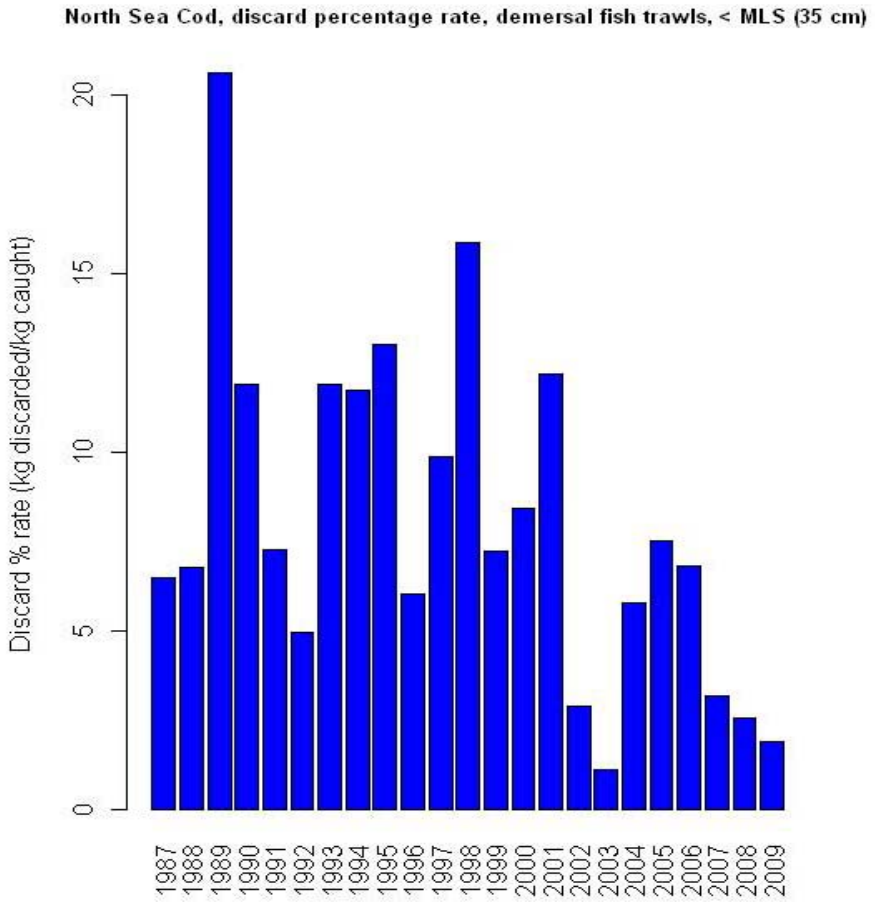

Figure 4. Discard percentage rate for North Sea small cod (<35 cm) by demersal fish trawlers from 1987-2009 Q1-Q4.

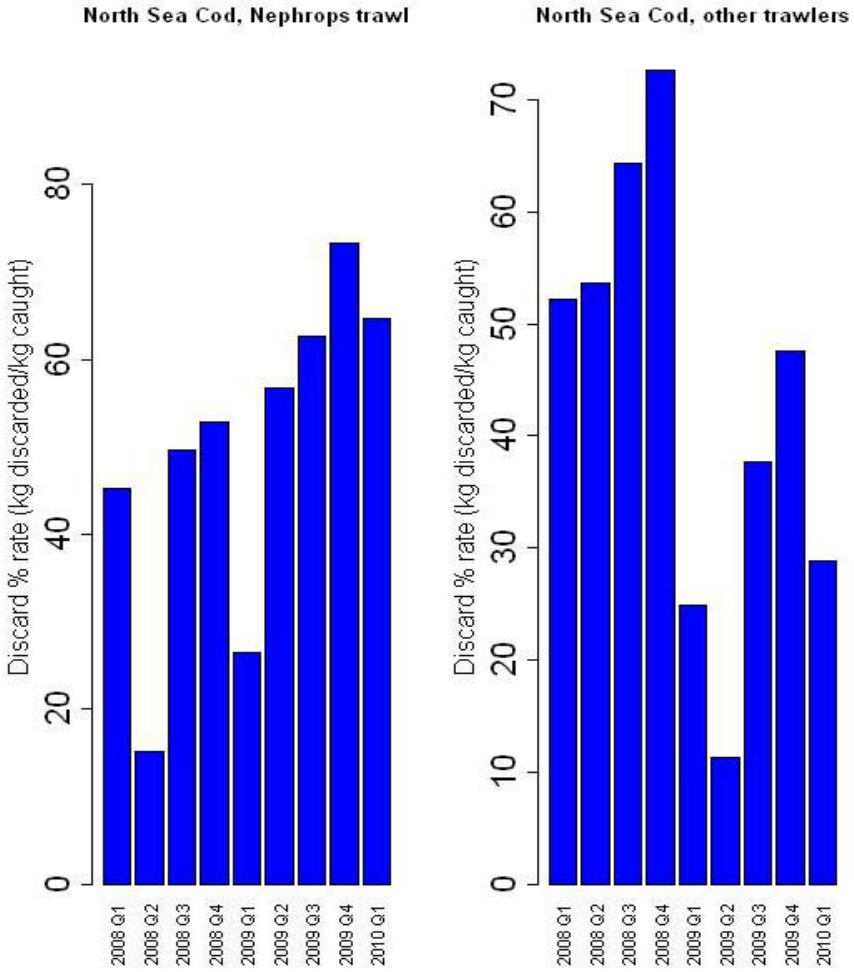

Figure 5. Discard percentage rate for North Sea cod by quarter, *Nephrops* trawl (left) and demersal fish trawlers (right), discards > 35 cm.

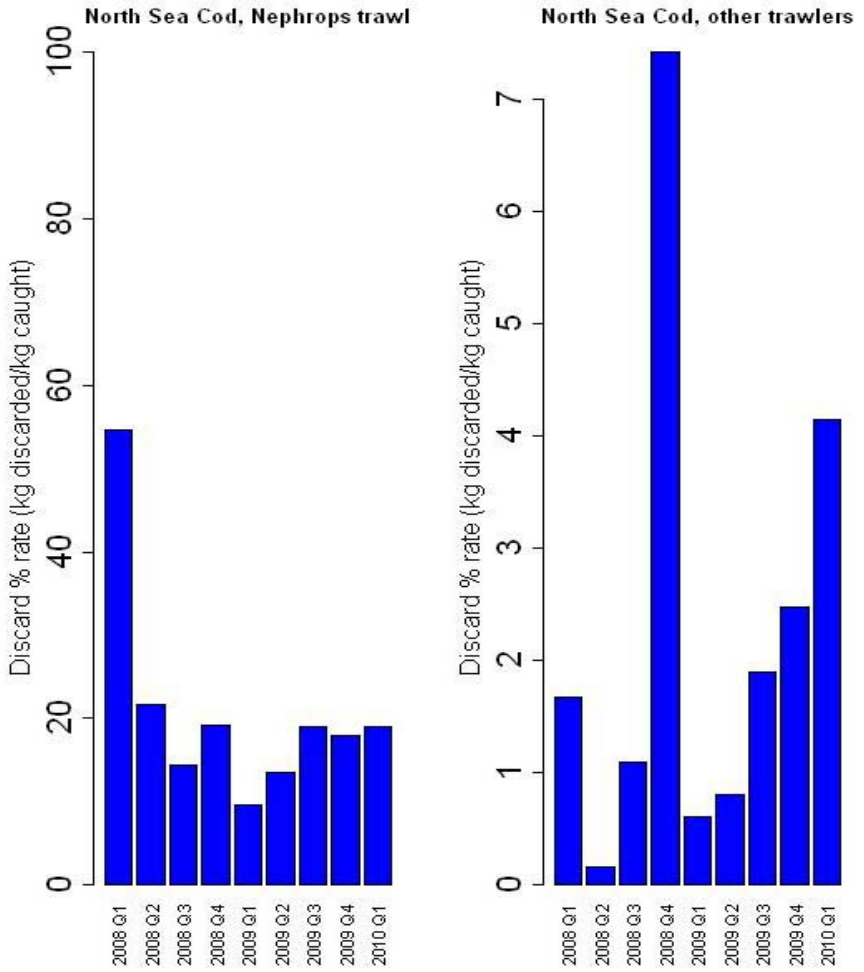

Figure 6. Discard percentage rate for North Sea cod by quarter, *Nephrops* trawl (left) and Demersal fish trawlers (right), discards < 35 cm.

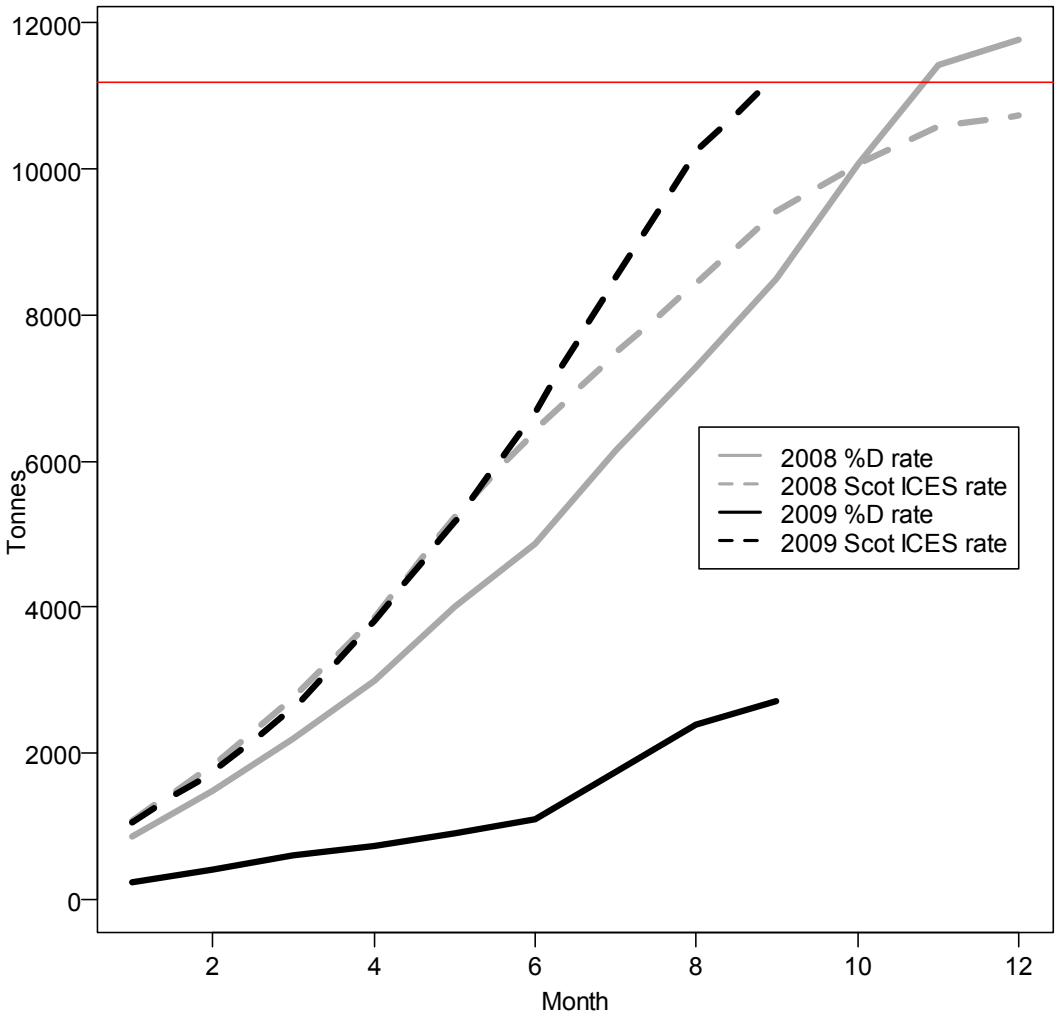

Figure 7. Trajectory of cumulative cod discards. Discards raised from discard rates for all sizes of fish using landings data from FIN database.

- Grey solid line; trajectory of discards in 2008 using D%.
- Grey dashed line; trajectory of discards in 2008 using the 2008 annual discard rate for the Scottish fleet as supplied to ICES (61%).
- Black solid line; trajectory of discards in 2009 using D%.
- Black dashed line; trajectory of discards in 2009 using the 2008 annual discard rate for the Scottish fleet as supplied to ICES (61%).
- Horizontal line indicates total discarded weight from the Scottish fleet in 2008 reported to ICES.

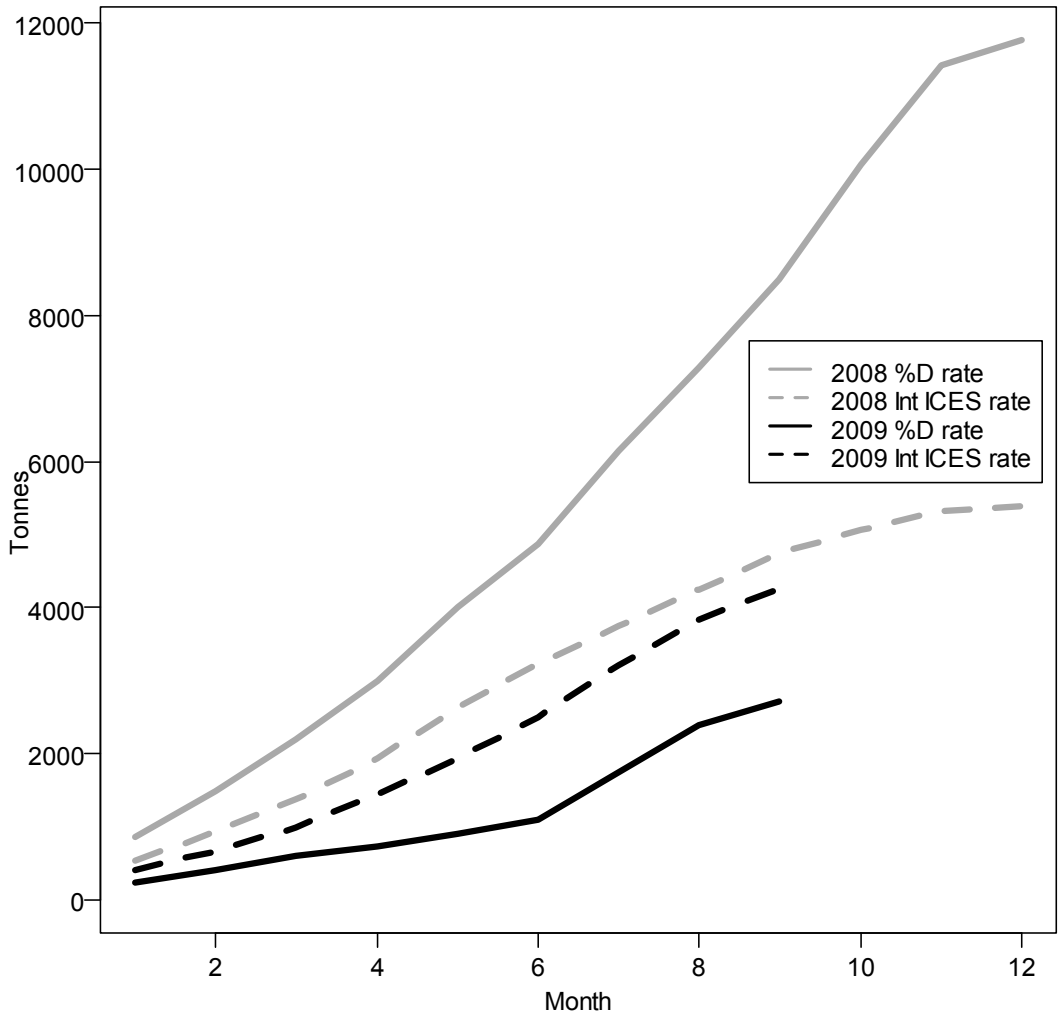

Figure 8. Trajectory of cumulative cod discards. Discards raised from discard rates for all sizes of fish using landings data from FIN database.

- Grey solid line; trajectory of discards in 2008 using D%.
- Grey dashed line; trajectory of discards in 2008 using the 2008 annual discard rate for the international fleet as supplied to ICES (44%).
- Black solid line; trajectory of discards in 2009 using D%.
- Black dashed line; trajectory of discards in 2009 using the forecast 2009 annual discard rate for the international fleet as supplied to ICES (37%).

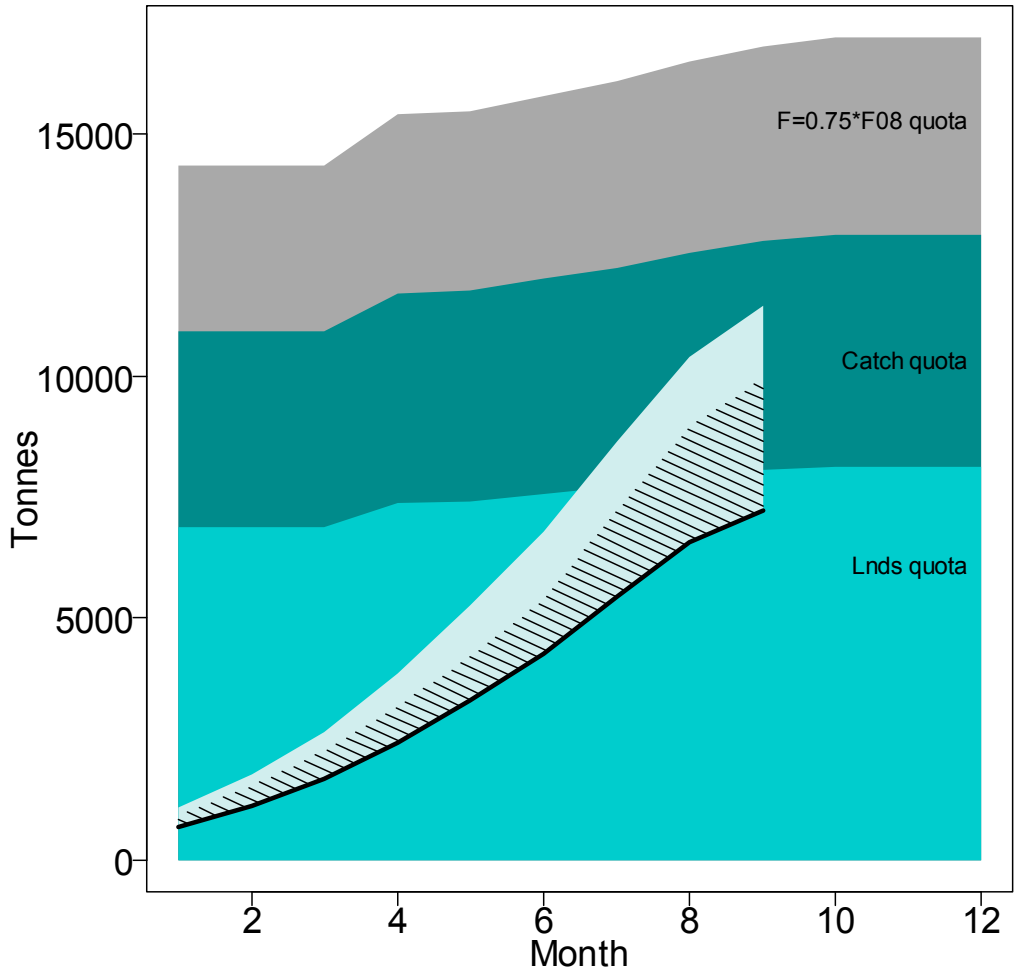

Figure 9. Trajectory of cumulative North Sea cod landings and discards. Discards raised from discard rates for all sizes of fish using landings data from FIN database. Coloured horizontal bands represent at their upper boundaries annual limits for (moving from lowest to highest band):

- "Lnds quota" block are landings assigned to Scottish producer organisations;
- "Catch quota" block derived by adding discards to the landings quota by applying the 2009 annual discard rate for the international fleet estimated by ICES (37%);
- "F=0.75*F08 quota" block = Scottish quota share of the cod removals predicted by ICES to deliver a 25% reduction in F in 2009 compared to 2008.
- Bold black line represents cumulative landings.
- Top of hatched area represents cumulative catch (using D% raised discard observations).
- Top of pale area underlying hashed area represents cumulative catch assuming the 2009 annual discard rate for the international fleet estimated by ICES (37%).

7.9. Appendix 4 to Annex V

Discards in the West of Scotland demersal fisheries: Observer data Update.

Paul G. Fernandes and Steven J. Holmes.

Summary

- Discard data from the Marine Scotland Science observer programme have been analysed up to and including 2009 quarter 4. Demersal trawlers in waters to the West of Scotland, which have the greater share of cod landings, have reduced their discard rates of marketable cod (> 35 cm) in 2009. Marketable cod discard rates from *Nephrops* trawlers have been high in 2009 relative to 2008 and the time series: however, landings from this component of the fleet are small. Small cod discards are at typical levels for both fleet categories.

- The net effect has been that estimated discards of cod up to and including quarter 4 in 2009 are ?? much lower ?? than the equivalent estimate in 2008 (?? t in 2009 *cf* ?? t in 2008).

- ?? These data indicate that the total catch of cod is currently much lower than that required for the 25% reduction in F as part of the long term management plan for cod on the west of Scotland. ??

Introduction

FRS has operated a scientific observer programme since the mid 1970s, sampling discards of the main demersal species (cod, haddock, whiting and saithe) by Scottish fishing vessels. The aim of this programme is to estimate the quantity and the age composition of the discarded component of the catch. The Scottish data series is unique in Europe: it has been made available to ICES for stock assessment purposes for many years and latterly to STECF study groups to evaluate cod recovery measures. The objective of this note is to report on the trends and quantities of discards from the observer programme. The normal raising procedures have not been applied, because these are contingent on an age-based estimation procedure which, naturally, requires the ages to be read. Ages are not read until some time after the data are collected as there is a significant preparation lead in time and reading time.

It should be noted that no attempt is made here to report on precision. There have been suggestions that discards should be reported to within an accuracy of 20%. It is not clear that this is what is intended and what actually may be required is a precision of 20%. Accuracy is more generally considered to consist of both bias and precision. Bias measures the average difference between the discard estimates and the true discards, but the true discards are not known. The bias of the discard estimates can only be evaluated by extensive simulation, using tools that have not yet been developed. It is most likely that the 20% figure refers to a coefficient of variation which

Table 1. Observer coverage (in days) for 2008 and 2009 by ICES sub-area and gear category.

	Area IV		Area VI		
Year	Other trawlers	Nephrops trawlers	Other trawlers	Nephrops trawlers	Total
2008	173	41	41	17	272
2009	226	92	80	17	415

describes the precision of the estimate. This is possible to calculate, although in a complex sampling programme such as the observer programme, this calculation is not straightforward. MSS has tried to develop methods to estimate precision over several years, but the methods are demanding and resources had to be diverted to meet other objectives. In recent years this task has been co-ordinated at an international level through the EC funded COST project which concluded this year. COST produced a set of generic tools for European sampling programmes including tools to estimate discards and the precision of these estimates. These tools are currently being evaluated and, where necessary, augmented for MSS sampling schemes and will hopefully be ready buy the end of Q1 2010.

Methods

Demersal discard sampling is stratified by area and fishing gear and quarter. On each sampling trip every haul is monitored and length frequencies of all discarded species are obtained by sampling 60 kg of discarded material from each haul. Samples of the landed component of the catch are also measured and otoliths are obtained from samples of discarded cod, haddock, whiting and saithe. Currently, estimates of numbers at age discarded are calculated on an annual basis using a ratio estimator, raising observed data on the basis of reported fleet / species landings. FRS also monitor *Nephrops* discards in North Sea and west coast fisheries. Fisheries are monitored by functional unit, e.g. Firth of Forth, Moray Firth, Fladen in the North Sea and the North Minch, South Minch and Firth of Clyde to the West of Scotland. Where possible, each fishery is sampled quarterly. Whilst on board, observers monitor every haul and obtain length frequencies of the discard and landings components from sub-samples (at least 200 *Nephrops* are measured from each category of the sorted landings and discards), which are then raised to fleet level. These estimates are made at the end of each year in accordance with the requirements of the European Commission's Data Collection Framework (EC DCF). Observer coverage in terms of the number of days is given for 2008 and 2009 in Table 1.

In order for these updates to be as up to date as possible, the quantity used to describe discarding is the percentage of the demersal fish species discarded relative to the total catch of that species: this has been termed the discard percentage rate *D%* (equation 1).

$$D\% = \left(\sum_{t=1}^{n} D_t \Big/ \sum_{t=1}^{n} C_t \right) \times 100 \qquad (1)$$

where:

D = discarded weight of species
C = catch weight of species
t = discard trip

In order to provide updates on a quarterly basis, this quantity has been calculated over all trips up until the current reporting quarter, for each year. In the current case, for example, providing updates up until and including 2009 Quarter 4, *D%* is reported for Quarters 1 to 4 in each of the years 1987-2009. Individual quarterly figures are also provided from 2008 Quarter 1 to 2009 Quarter 4.

The categorisation of gear has changed over the years. For the purposes of consistency, in this paper gears are divided into two categories: 1) *Nephrops* trawlers; and 2) all other trawlers (targeting demersal fish). No attempt has been made to stratify within these categories according to mesh size, although these largely conform to TR2 and TR1 categories respectively.

For cod only, the percentage discard rate for marketable fish in these two categories, was applied to the total landings [of the two categories] to determine the raised discard quantities in 2008 and 2009. The two categories discards were then added to determine the total raised discard quantities. This method of raising the discard data was compared to the one traditionally employed for submission to annual assessment working groups. For Nephrops trawlers west of Scotland problems arose in that sampled discarding of cod in a quarter was recorded as 100% in quarters where landings were also recorded. Alternative methods to determining the D% value were explored to see if a method less sensitive to sampling level could be found. The options considered were

Option 0: D% as from equation 1.

Option 1: Using an annual value of D% rather than quarterly values

Option 2: Replacing catch weight of the species (cod in this instance) in equation 1 with the catch weight of cod, haddock and whiting. The discards are then raised using the landings of cod, haddock and whiting combined.

Option 3: Replacing catch weight of the cod in equation 1 with the catch weight of *Nephrops*. The discards are then raised using the landings of *Nephrops*.

Results

The discard percentage rate is reported by species (cod, haddock and whiting), by gear (*Nephrops* trawl and Demersal fish trawls), for Quarters 1 to 4 in years 1987-2009, in Tables 2 – 7. These are illustrated in Figures 1 to 12. Recent quarter information is provided in Figures 13-18.

Marketable cod discards (>35 cm) from *Nephrops* trawlers (Fig. 1) have been high in 2009 relative to 2008 and the time series. Small cod discards are at typical levels. Demersal trawlers have, however, reduced the discards of marketable cod in 2009 (Fig. 3). The high levels of discards in recent years relative to years prior to and including 2006 are due to the combination of the reasonable 2005 year-class and more effective enforcement (post 2004) which means that fishermen are no longer capable of landing their fish illegally (see Park 2009). Discards of small cod (< 35 cm) by other demersal trawlers have been low in recent years (Fig. 4).

Marketable haddock discards (>30 cm) from *Nephrops* trawlers (Fig. 5) are similar to the long term average, as are those of smaller haddock (<30 cm, Fig. 6). In other demersal fish trawlers, however, there has been a recent rise in discards of marketable haddock (Fig. 7), although this is lower than during the period 2002-2006. There has been a significant decrease in discards of small haddock (< 30 cm, Fig. 8) to historically low levels. Marketable whiting discards (>27 cm) from *Nephrops* trawlers continue to be high relative to the long term average (Fig. 9), as do smaller whiting (Fig. 10). However, in other demersal trawlers there has been a marked decrease in the discards of both marketable and small whiting (Figs. 11 and 12). Recent quarter information (Figs. 13-18) reflect these trends, with decreases in marketable and small cod, haddock and whiting discards by other trawlers.

Figure 19 shows cod catches calculated using discard observations and the raising methods described in this document, relative to catches calculated using the west coast cod stock discard rate calculated for the international fleet in 2008 as used by the ICES assessment working group in 2009 (ICES 2009). For 2008 data all options lead to a similar trajectory of catch. In 2009, discard observations raised using option 0 method lead to large estimates of discards in months 4, 11 and 12. This leads to estimated discards in 2009 being a higher percentage of the catch than the annual 2008 figure from month 4 and considerably higher by the end of the year. In 2008, by quarter three, the discards of cod estimated by this procedure were 391 t, in 2009 by the same period, discards of

cod were 238t. By the end of the year the discards in 2008 and 2009 were 498t and 439t respectively. Using an annualised rate (option 1) leads to a trajectory similar to that if the ICES assessment rate for 2008 is employed except for the first quarter. This is because of a high annual rate rate for the TR2 fleet combined with relatively high landings for that fleet in the first three months compared to later in the year. Of the options tried, when the combined catch of cod, haddock and whiting are used in the calculation of D% (option 2) a trajectory of discards closest to that of the 2008 annual ICES rate is obtained. Using option 3 (using Nephrops catch in the calculation of D%) results in cumulative discards considerably higher than if using the ICES rate.

The trajectory of west coast cod landings by Scottish vessels in 2009 is shown in Figure 20 (bold black line). This trajectory is compared to a 'Scottish quota' obtained by summing the quota allocated to Scottish producer organisations (POs); the lowest of the three solid blocks. The quota total can be seen to rise during the year because the POs buy in quota as a season progresses. The middle block represents a Scottish 'catch quota'. This was derived by using the west coast cod stock discard rate calculated for the international fleet in 2008 as used by the ICES assessment working group (ICES 2009). The hatched area represents cumulative discards (using the raised discard observations for both the Nephrops and other trawlers – not presented here). The upper bound of this hatched area represents a trajectory of estimated catch. The pale area underlying the hatched area represents a 'status quo' of cumulative discards, i.e. the discards that would occur assuming a discard rate equal to the annual average discard rate for 2008. Finally a third block (labelled "0.75*F08") shows the Scottish quota share of a catch of cod in 2009 predicted by ICES to achieve the desired 25% reduction in mean F for the stock in 2009 compared to 2008. This final block does assume that all mortality other than fishing is accounted for by a natural mortality assumption of 0.2 which may or may not be the case for the cod stock west of Scotland.

The information presented in Figure 20 show how the hashed area and pale area reflect the black lines for the respective option in Figure 19. For example for option 0 the large estimate of discards using D% in month 4 raises the cumulative catch to a value higher than might be expected from ICES forecasts of catch. The trajectories of total catch are similar thereafter until months 11 and 12 when there are estimates of large discards again using the D% approach. The end result is for the estimate of total catch in 2009 to finish above the 'catch quota' upper limit. However, the catch is much lower than that required for the 25% reduction in F as part of the long term management plan for cod on the west of Scotland. All options used to calculate D% show a final catch total lower than that required for the 25% reduction in F. Only option 2 estimates the final catch total to be below the 'catch quota' upper limit.

References

Park, M. (2009). Dealing with Discards. ICES CM 2009/M:4. 16 pp.

ICES (2009). Report of the Working Group on the Celtic Seas Region (WGCSE). ICES CM 2009/ACOM:09. 1075 pp.

Table 2. West coast Cod, discard percentage rate, *Nephrops* trawl

Year	D% > MLS (35 cm)	D% < MLS (35 cm)
1987	0.05	27.09
1988	0.00	4.75
1989	0.00	19.95
1990	0.00	12.45
1991	0.78	16.99
1992	0.46	63.39
1993	0.24	6.07
1994	0.00	12.32
1995	0.00	3.25
1996	0.13	3.14
1997	1.33	17.53
1998	0.35	19.25
1999	0.00	1.82
2000	0.00	34.89
2001	12.31	18.51
2002	13.79	20.29
2003	0.13	2.92
2004	2.62	9.42
2005	8.30	20.33
2006	27.16	26.17
2007	81.59	15.97
2008	5.32	17.21
2009	81.16	13.08

Table 3. West coast Cod, discard percentage rate, Demersal fish trawls

Year	D% > MLS (35 cm)	D% < MLS (35 cm)
1987	0.00	11.63
1988	0.03	1.00
1989	0.89	8.22
1990	0.08	0.18
1991	0.07	1.23
1992	5.60	1.06
1993	0.84	0.06
1994	0.14	0.29
1995	0.11	0.28
1996	0.14	0.10
1997	0.60	2.84
1998	0.75	0.35
1999	0.00	0.07
2000	0.90	6.74
2001	0.19	0.56
2002	0.30	2.39
2003	0.18	0.11
2004	0.00	0.00
2005	0.51	0.39
2006	4.02	2.78
2007	79.55	0.16
2008	71.18	0.00
2009	64.21	0.29

Table 4. West coast Haddock, discard percentage rate, *Nephrops* trawl

Year	D% > MLS (30 cm)	D% < MLS (30 cm)
1987	0.38	42.30
1988	8.70	47.42
1989	18.20	56.89
1990	1.63	57.27
1991	3.23	62.15
1992	8.67	80.85
1993	5.65	72.14
1994	15.41	58.50
1995	6.41	45.97
1996	1.23	66.47
1997	4.55	64.52
1998	8.00	55.79
1999	4.32	61.56
2000	0.62	95.54
2001	0.68	58.56
2002	4.35	70.26
2003	12.94	52.33
2004	15.90	41.52
2005	6.74	76.30
2006	10.25	79.29
2007	26.76	47.15
2008	4.79	82.05
2009	7.21	89.17

Table 5. West coast Haddock, discard percentage rate, Demersal fish trawls

Year	D% > MLS (30 cm)	D% < MLS (30 cm)
1987	1.50	21.67
1988	0.78	20.86
1989	1.97	9.83
1990	2.36	9.60
1991	4.40	27.91
1992	13.43	26.04
1993	13.34	24.64
1994	12.30	13.23
1995	10.38	22.82
1996	8.41	28.13
1997	9.96	17.92
1998	7.67	25.14
1999	7.63	15.34
2000	6.47	32.57
2001	10.04	29.26
2002	24.73	26.36
2003	18.61	18.97
2004	11.80	38.32
2005	22.12	24.17
2006	13.72	13.66
2007	5.96	7.36
2008	7.44	0.32
2009	11.62	1.21

Table 6. West coast Whiting, discard percentage rate, *Nephrops* trawl

Year	D% > MLS (27 cm)	D% < MLS (27 cm)
1987	3.15	88.31
1988	11.79	33.82
1989	7.30	67.00
1990	2.92	75.17
1991	9.61	65.38
1992	11.20	73.38
1993	18.06	51.13
1994	12.51	56.34
1995	16.20	69.30
1996	5.38	85.58
1997	8.33	79.99
1998	10.07	82.86
1999	18.23	65.64
2000	4.31	92.66
2001	6.97	58.84
2002	21.99	52.22
2003	19.02	79.11
2004	40.91	41.44
2005	20.94	62.39
2006	24.77	73.34
2007	37.81	49.04
2008	25.06	74.94
2009	25.42	74.54

Table 7. West coast Whiting, discard percentage rate, Demersal fish trawls

Year	D% > MLS (27 cm)	D% < MLS (27 cm)
1987	8.08	14.71
1988	13.64	26.95
1989	18.60	16.37
1990	25.01	24.45
1991	14.24	10.11
1992	24.30	39.25
1993	29.93	10.52
1994	21.53	5.00
1995	14.84	8.92
1996	21.07	22.54
1997	25.39	16.90
1998	19.30	29.23
1999	14.26	11.89
2000	16.12	23.72
2001	17.87	9.99
2002	29.20	6.43
2003	8.68	5.53
2004	26.55	35.77
2005	60.26	33.46
2006	26.58	2.32
2007	22.20	13.40
2008	1.49	0.00
2009	5.73	0.21

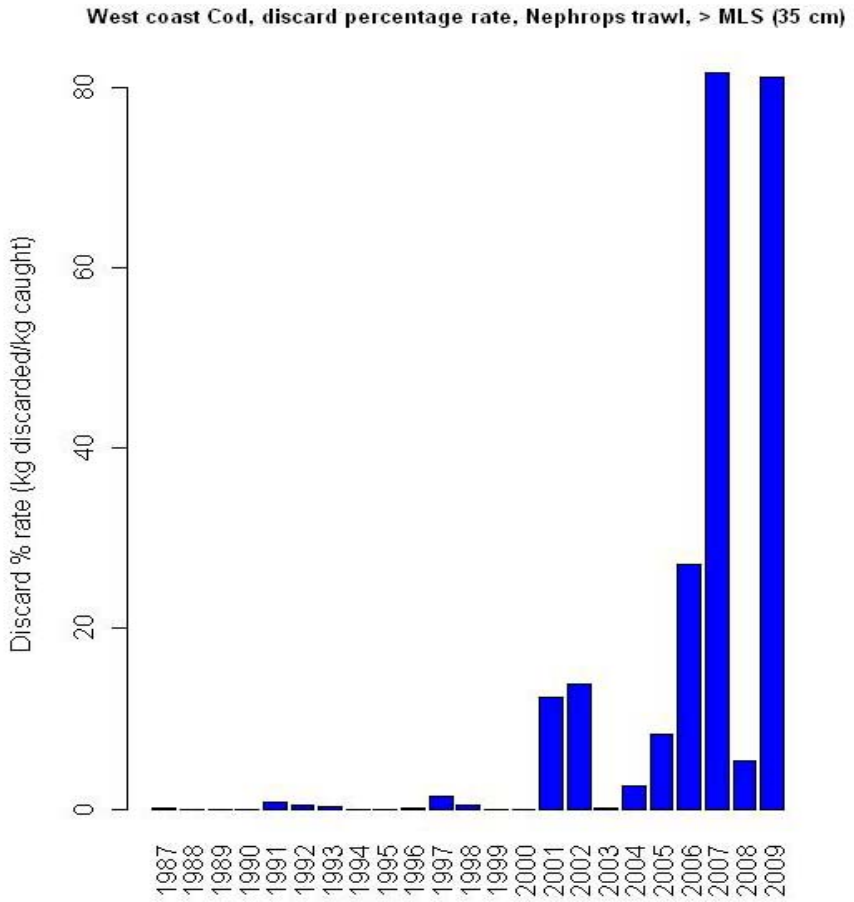

Figure 1. Discard percentage rate for west of Scotland marketable cod (>35 cm) by Nephrops trawlers from 1987-2009 Q1-Q4.

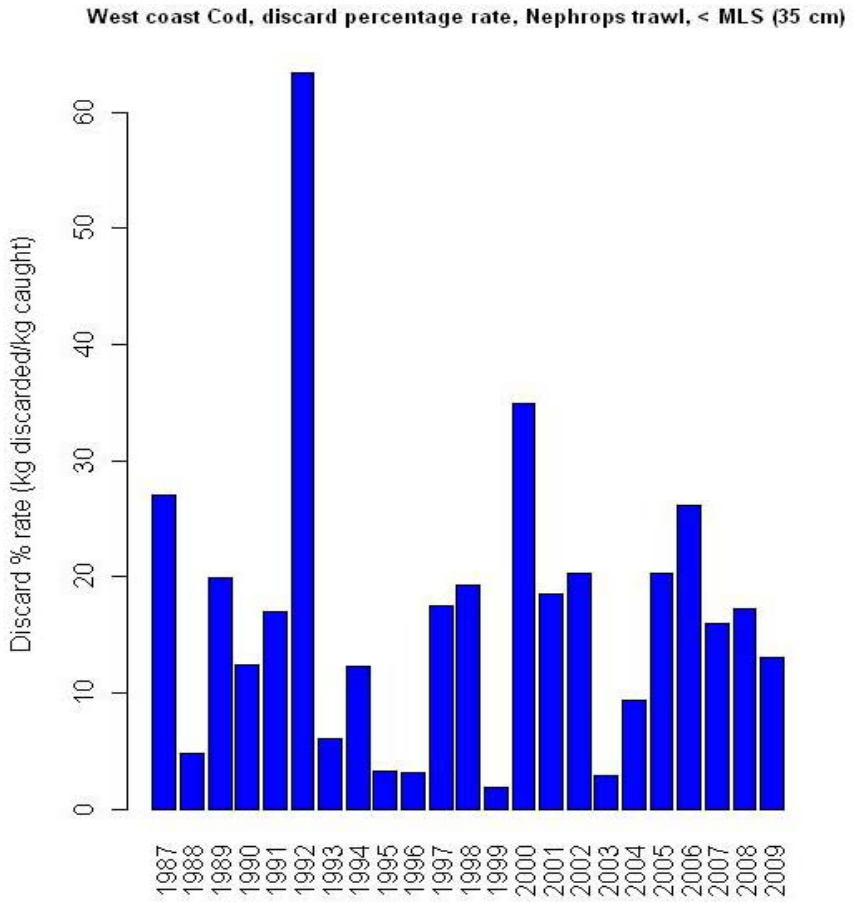

Figure 2. Discard percentage rate for west of Scotland small cod (<35 cm) by Nephrops trawlers from 1987-2009 Q1-Q4.

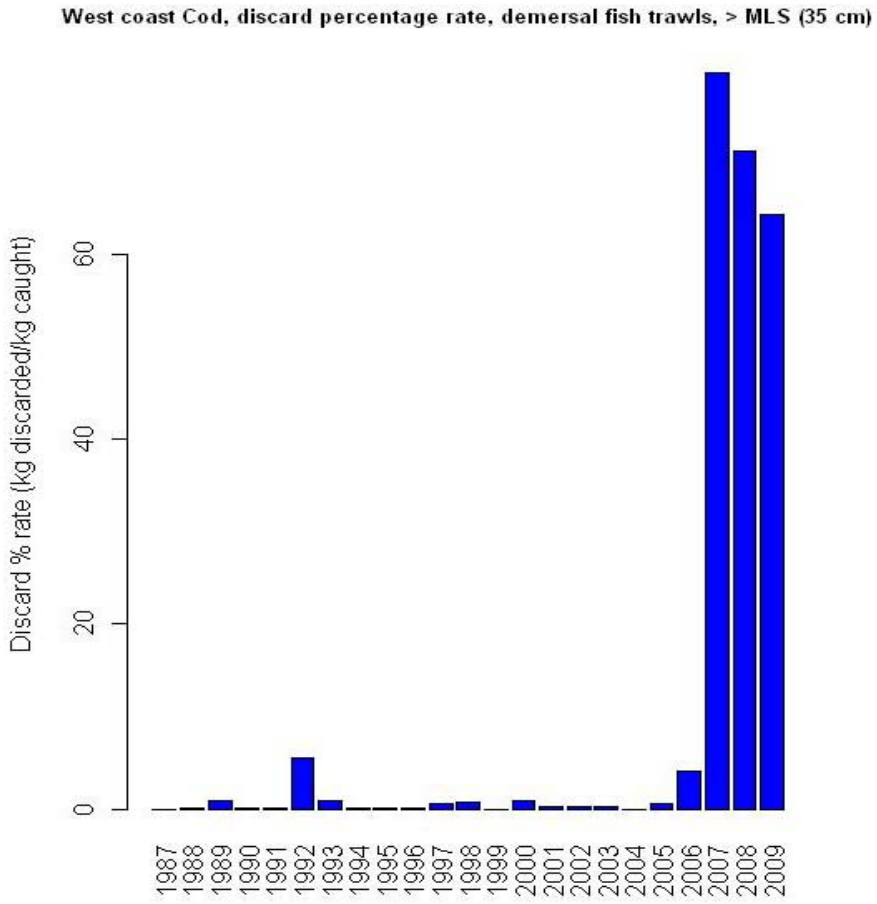

Figure 3. Discard percentage rate for west of Scotland marketable cod (>35 cm) by demersal fish trawlers from 1987-2009 Q1-Q4.

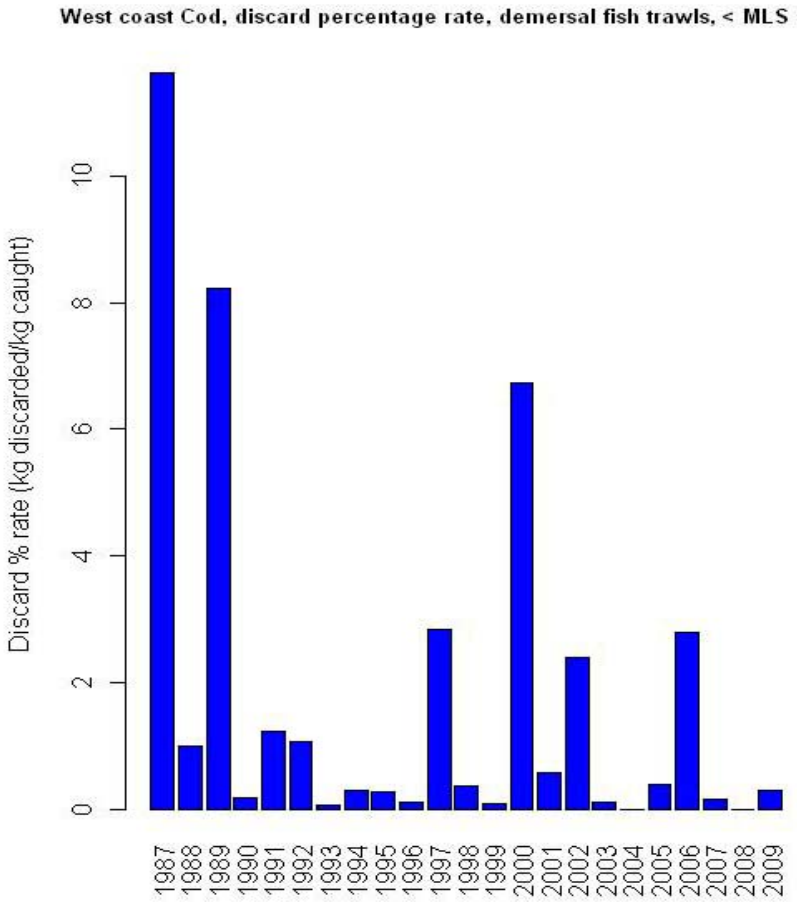

Figure 4. Discard percentage rate for west of Scotland small cod (<35 cm) by demersal fish trawlers from 1987-2009 Q1-Q4.

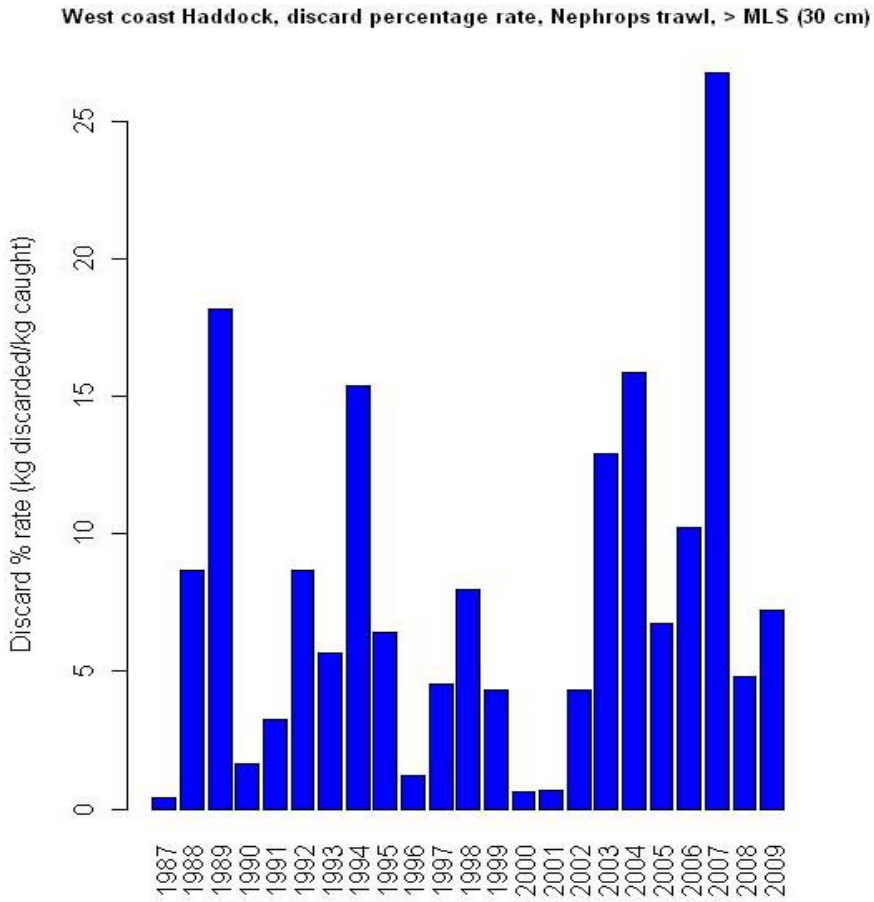

Figure 5. Discard percentage rate for west of Scotland marketable haddock (>30 cm) by Nephrops trawlers from 1987-2009 Q1-Q4.

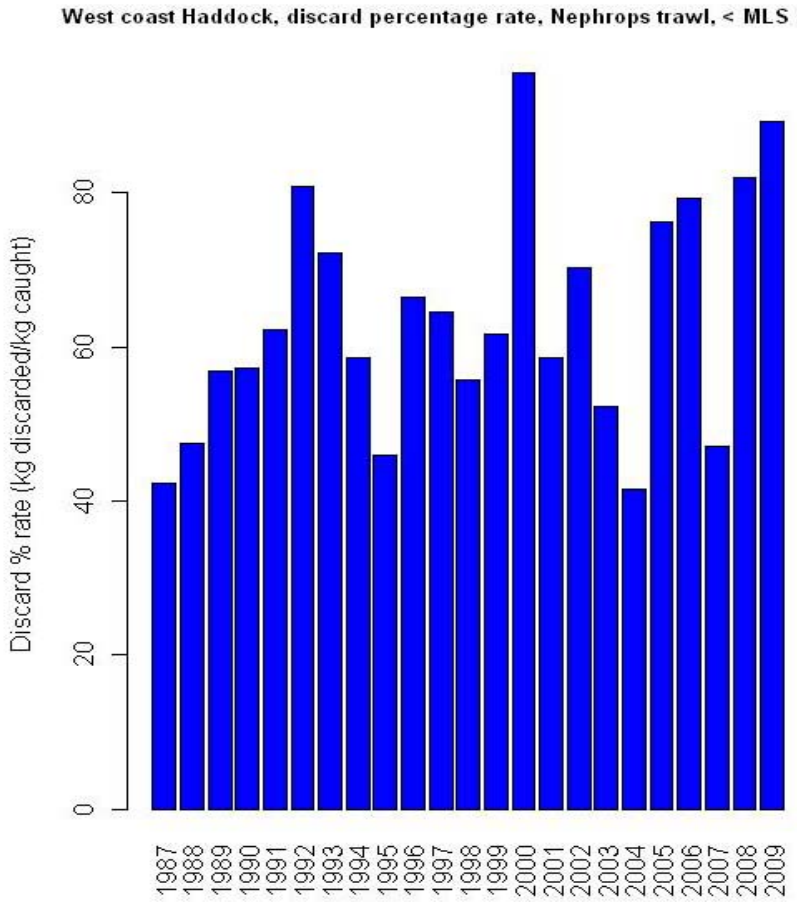

Figure 6. Discard percentage rate for west of Scotland small haddock (<30 cm) by Nephrops trawlers from 1987-2009 Q1-Q4.

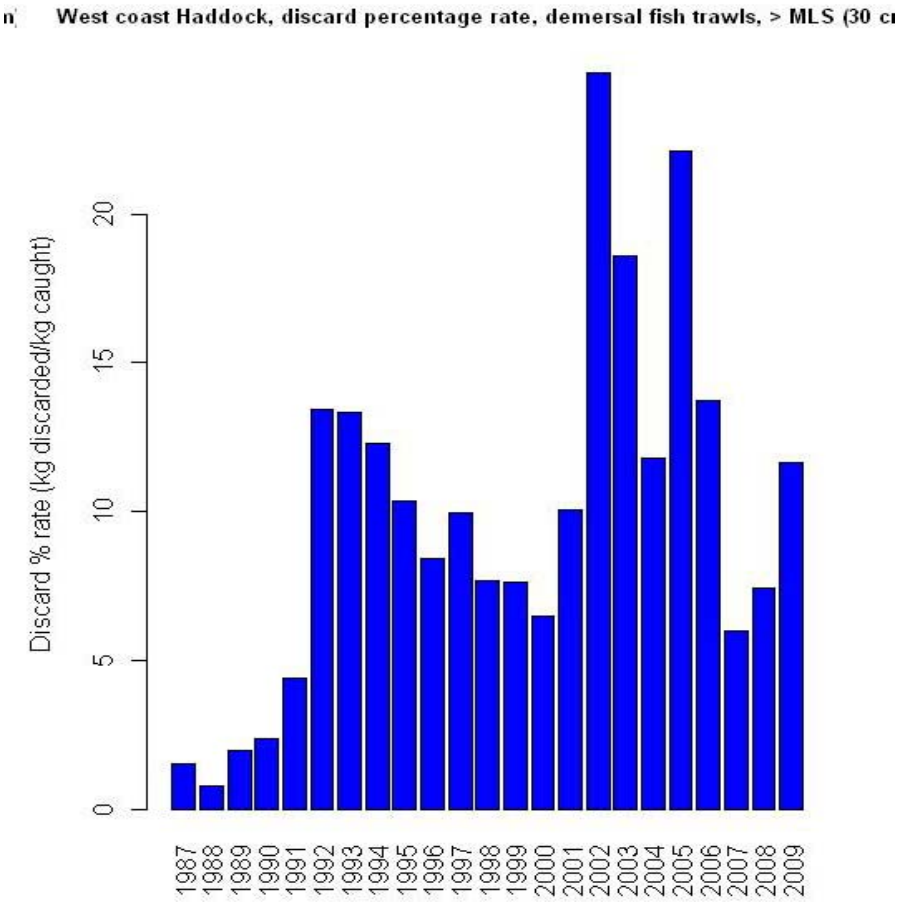

Figure 7. Discard percentage rate for west of Scotland marketable haddock (>30 cm) by demersal fish trawlers from 1987-2009 Q1-Q4.

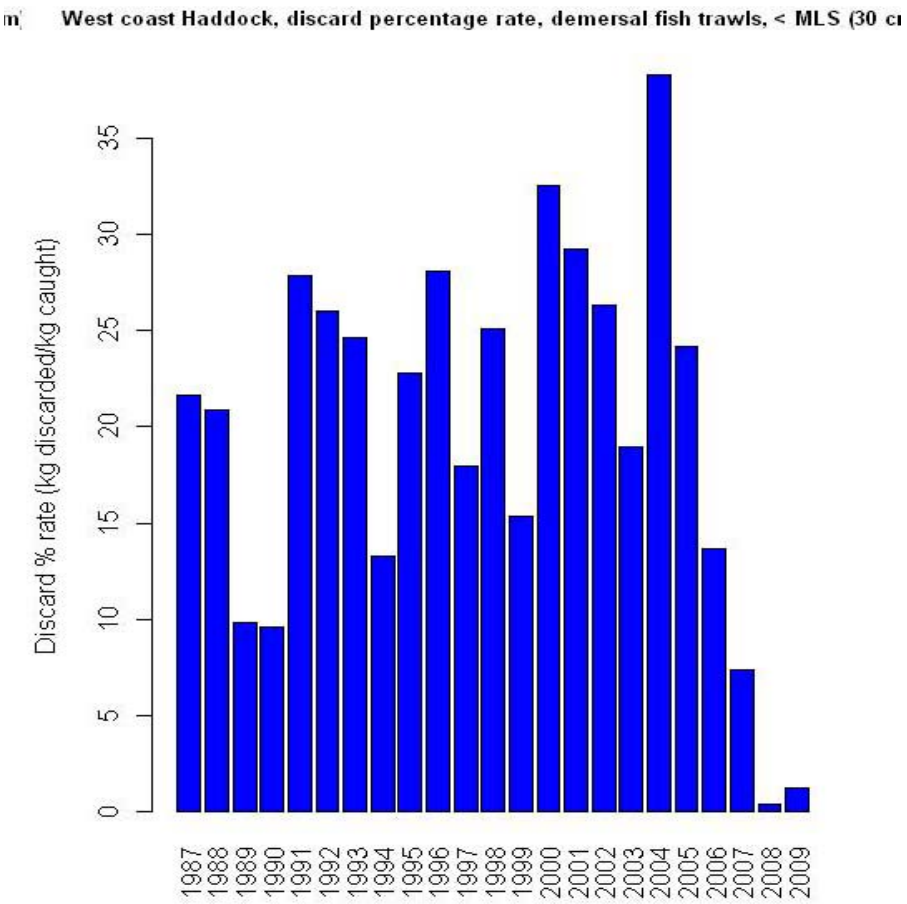

Figure 8. Discard percentage rate for west of Scotland small haddock (< 30 cm) by demersal fish trawlers from 1987-2009 Q1-Q4.

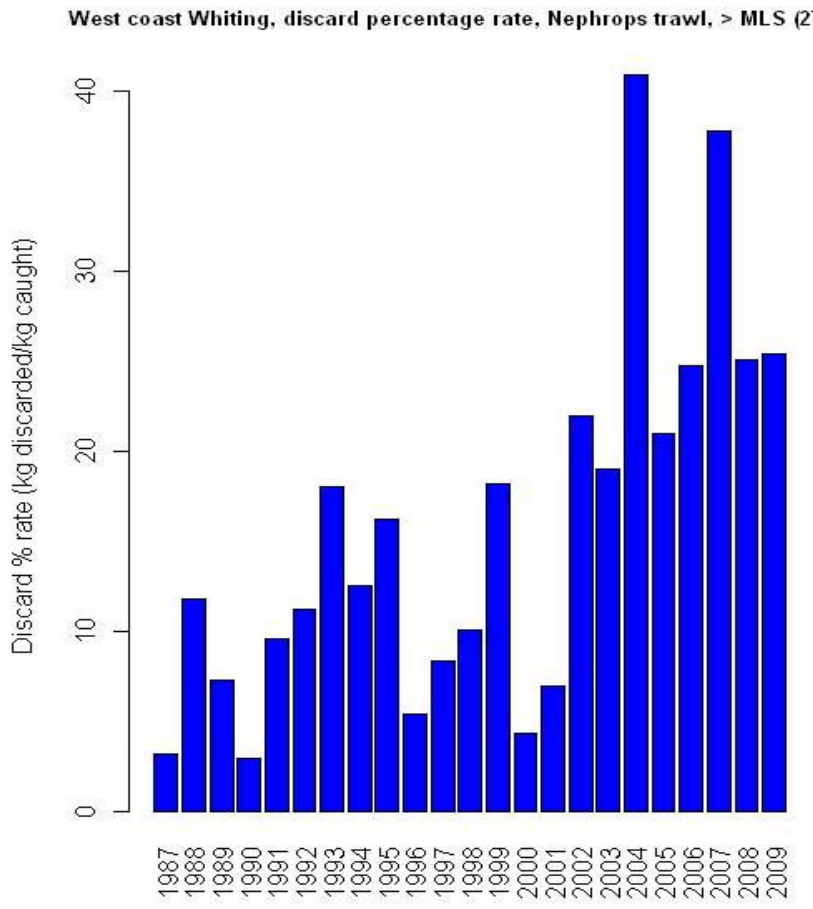

Figure 9. Discard percentage rate for west of Scotland marketable whiting (>27 cm) by Nephrops trawlers from 1987-2009 Q1-Q4.

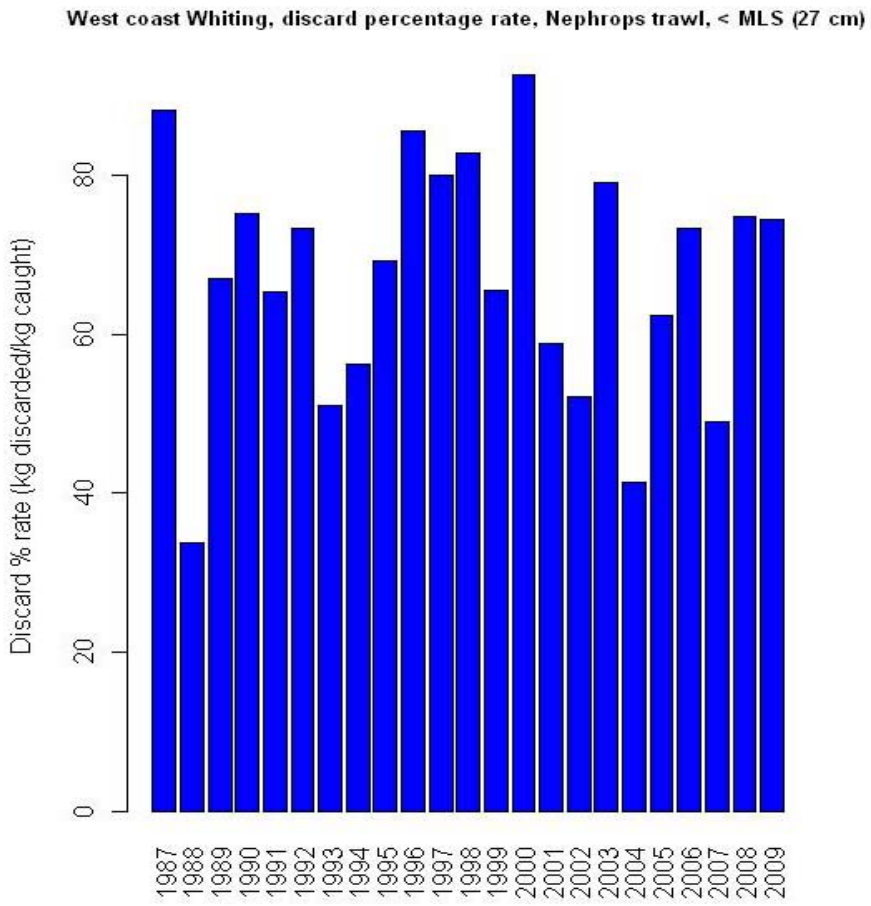

Figure 10. Discard percentage rate for west of Scotland small whiting (< 27 cm) by Nephrops trawlers from 1987-2009 Q1-Q4.

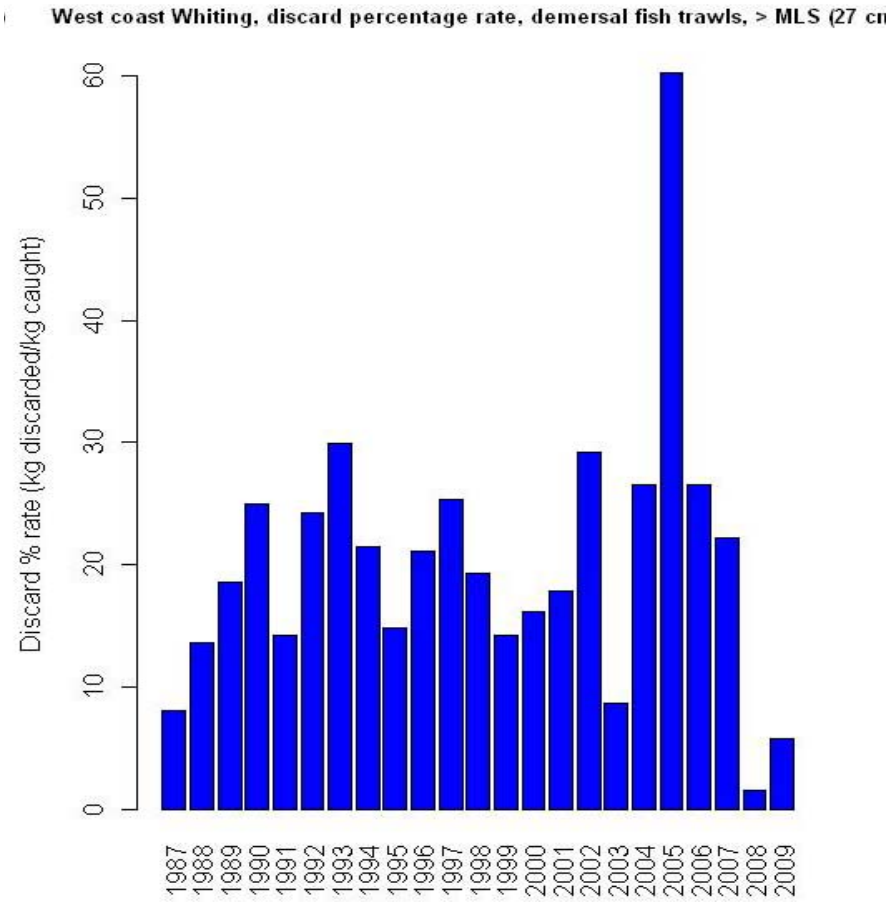

Figure 11. Discard percentage rate for west of Scotland marketable whiting (>27 cm) by demersal fish trawlers from 1987-2009 Q1-Q4.

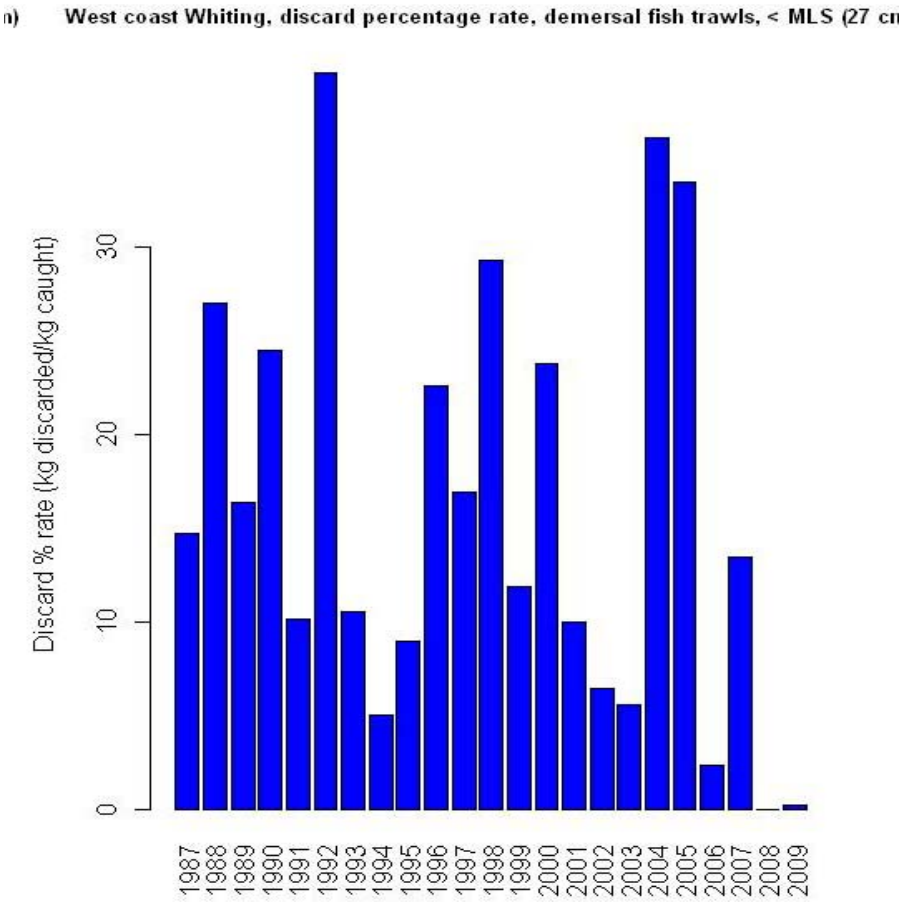

Figure 12. Discard percentage rate for west of Scotland small whiting (< 27 cm) by demersal fish trawlers from 1987-2009 Q1-Q4.

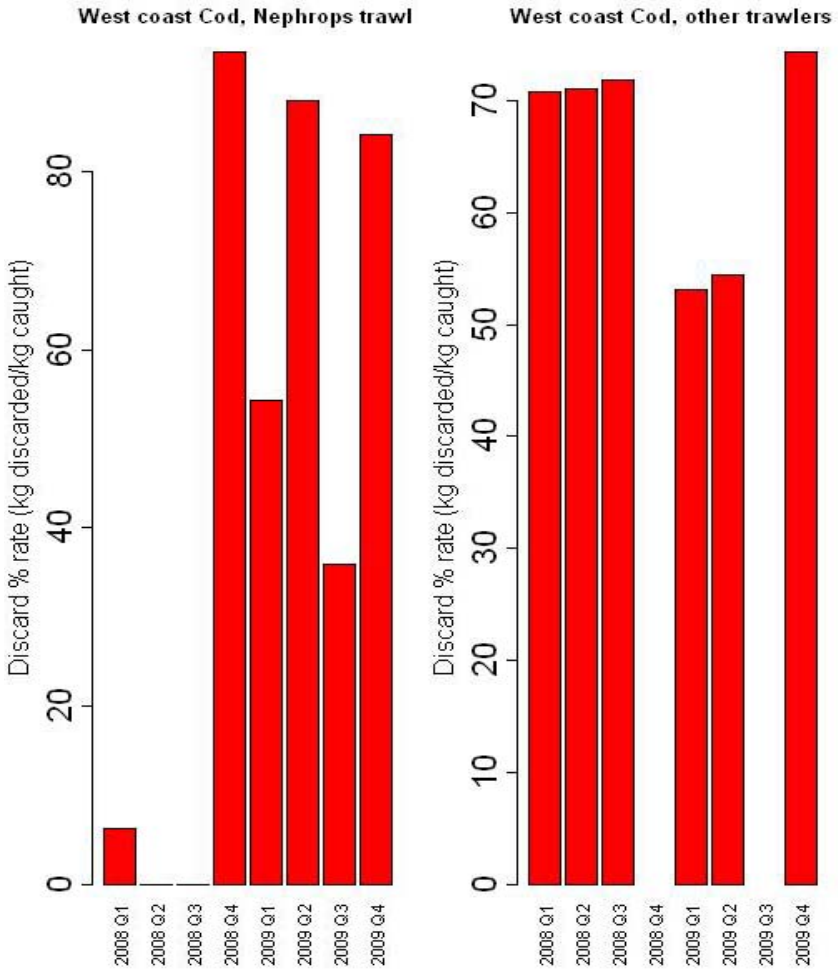

Figure 13. Discard percentage rate for west of Scotland cod by quarter, *Nephrops* trawl (left) and demersal fish trawlers (right), discards > 35 cm.

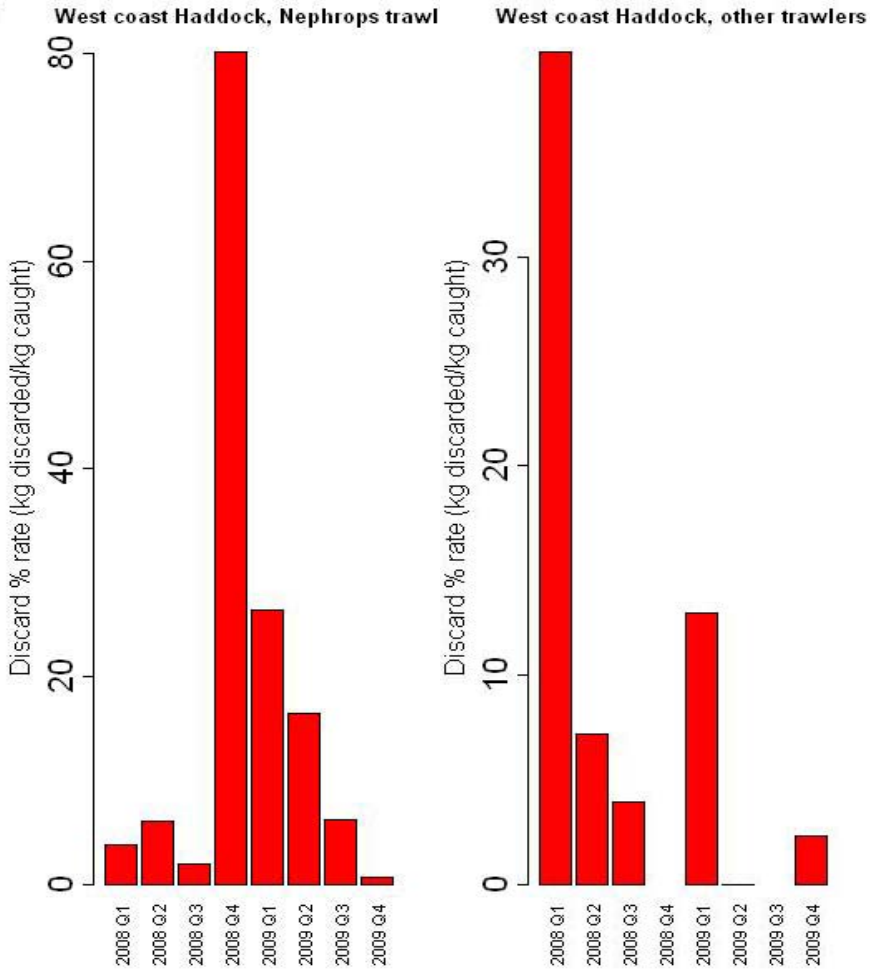

Figure 14. Discard percentage rate for west of Scotland haddock by quarter, *Nephrops* trawl (left) and demersal fish trawlers (right), discards > 30 cm.

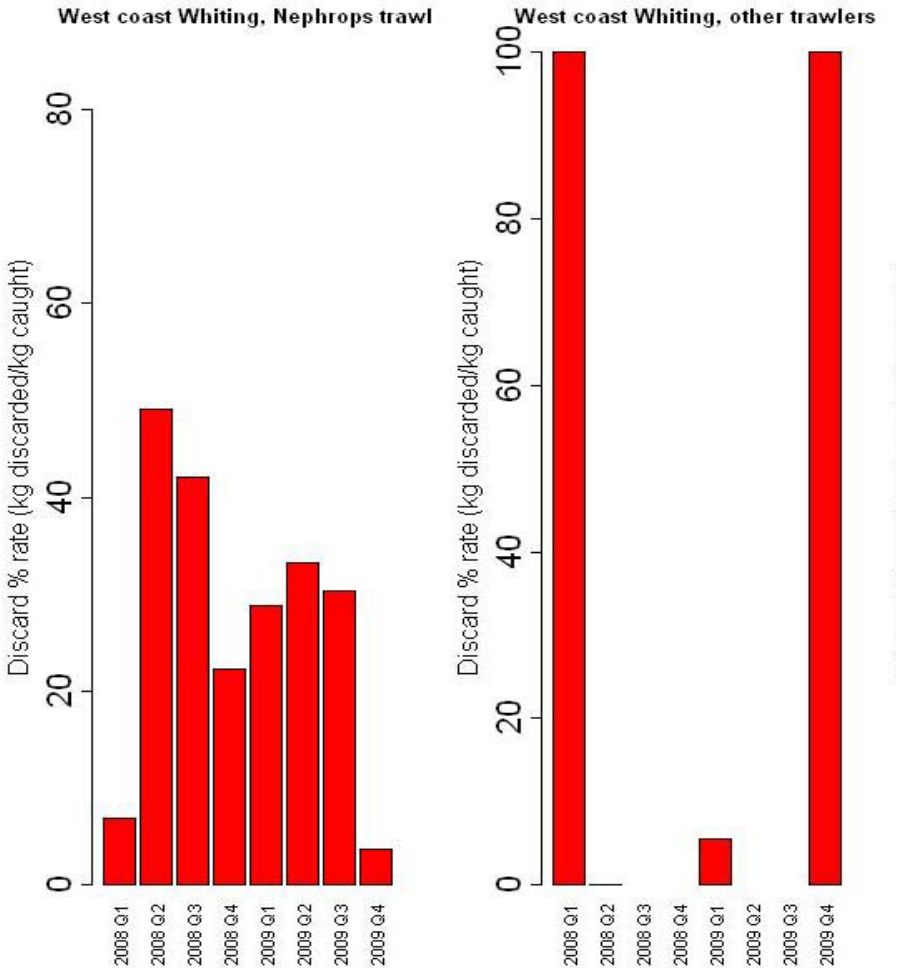

Figure 15. Discard percentage rate for west of Scotland whiting by quarter, *Nephrops* trawl (left) and Demersal fish trawlers (right), discards > 27 cm.

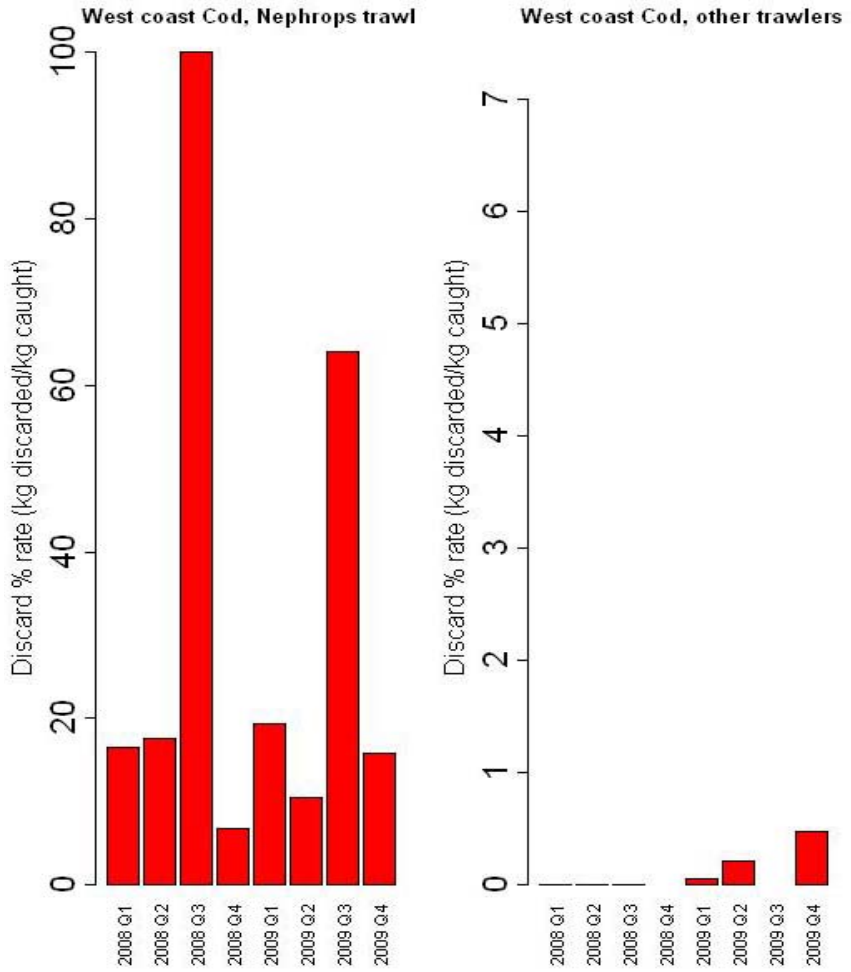

Figure 16. Discard percentage rate for west of Scotland cod by quarter, *Nephrops* trawl (left) and Demersal fish trawlers (right), discards < 35 cm.

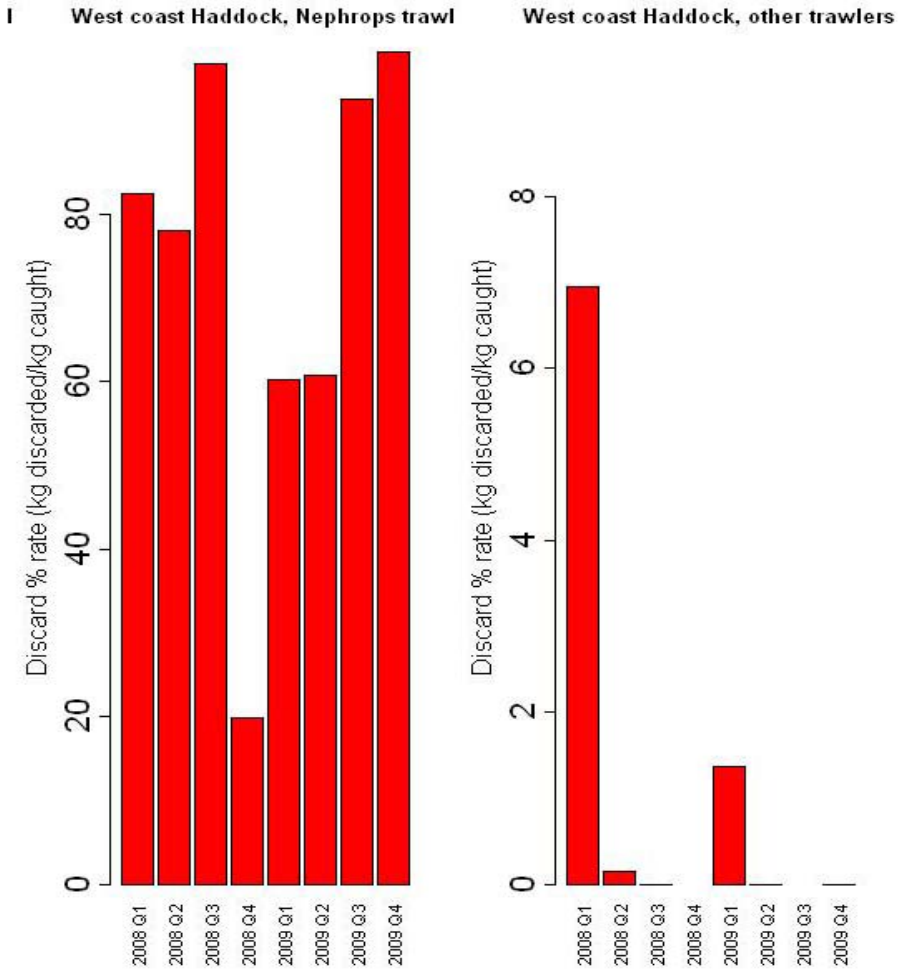

Figure 17. Discard percentage rate for west of Scotland haddock by quarter, *Nephrops* trawl (left) and Demersal fish trawlers (right), discards < 30 cm.

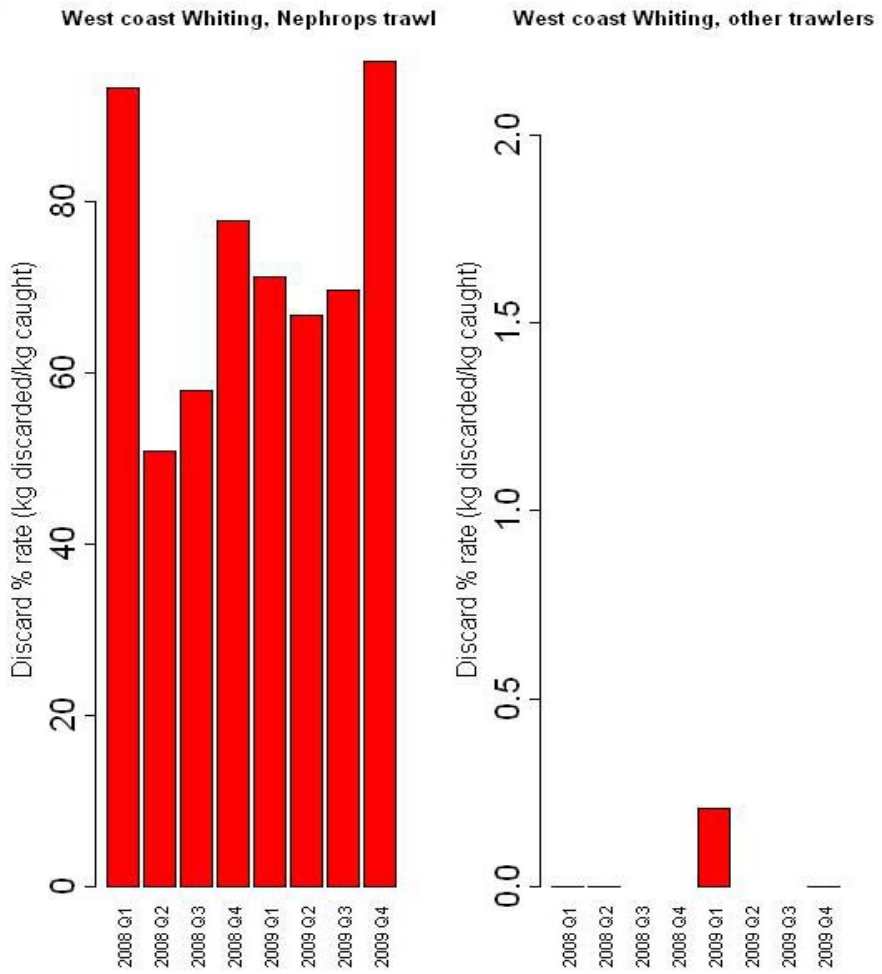

Figure 18. Discard percentage rate for west of Scotland whiting by quarter, *Nephrops* trawl (left) and Demersal fish trawlers (right), discards < 27 cm.

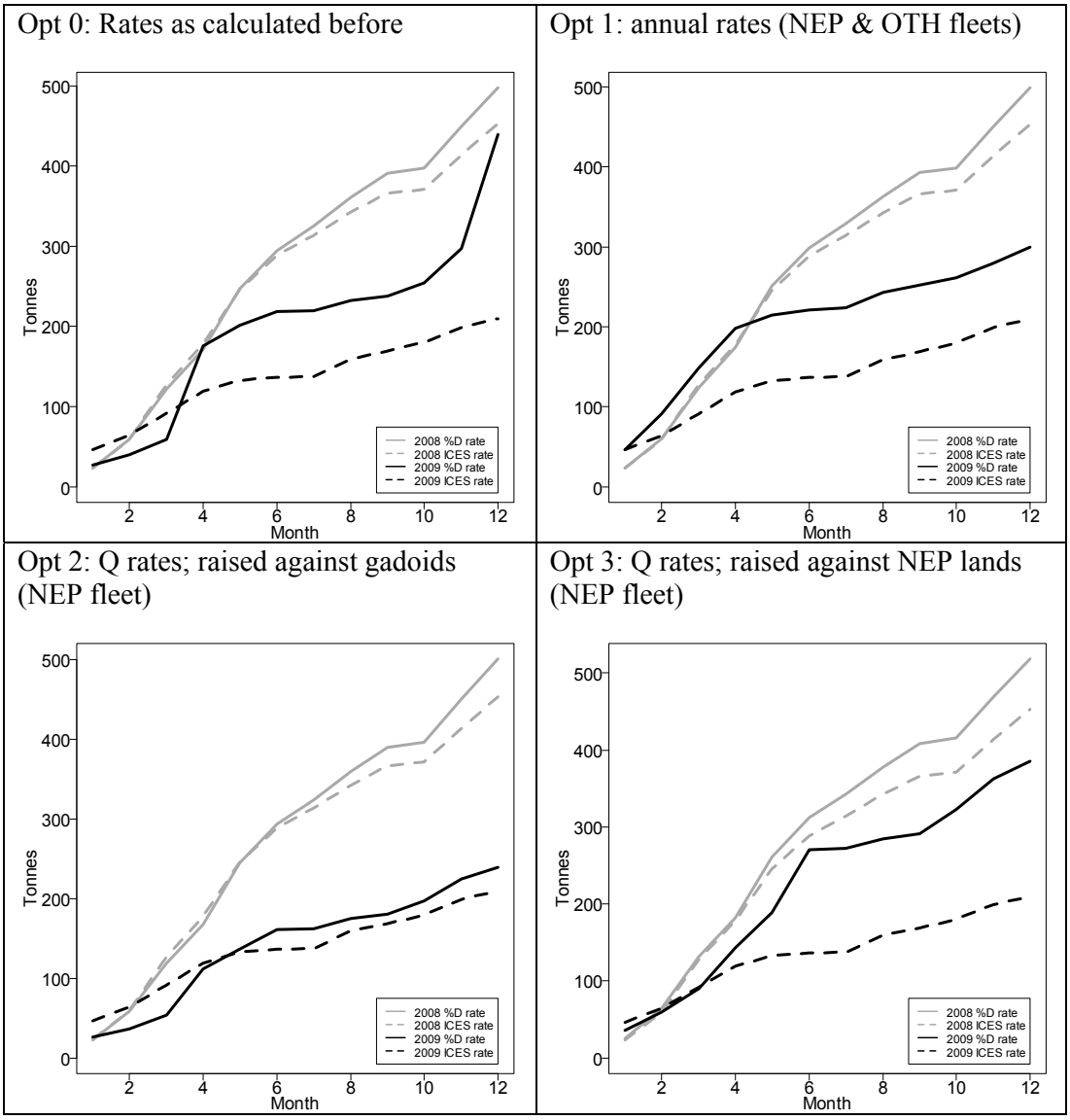

Figure 19. Trajectory of cumulative cod discards. Discards raised from discard rates for all sizes of fish using landings data from FIN database.

Grey solid line; trajectory of discards in 2008 using D% where D% relates to options 0 to 3.
Grey dashed line; trajectory of discards in 2008 using the 2008 annual discard rate for the international fleet as supplied to ICES (67%).
Black solid line; trajectory of discards in 2009 using D%.
Black dashed line; trajectory of discards in 2009 using the 2008 annual discard rate for the international fleet as supplied to ICES (67%).

Opt 0: Rates as calculated before	Opt 1: annual rates (NEP & OTH fleets)

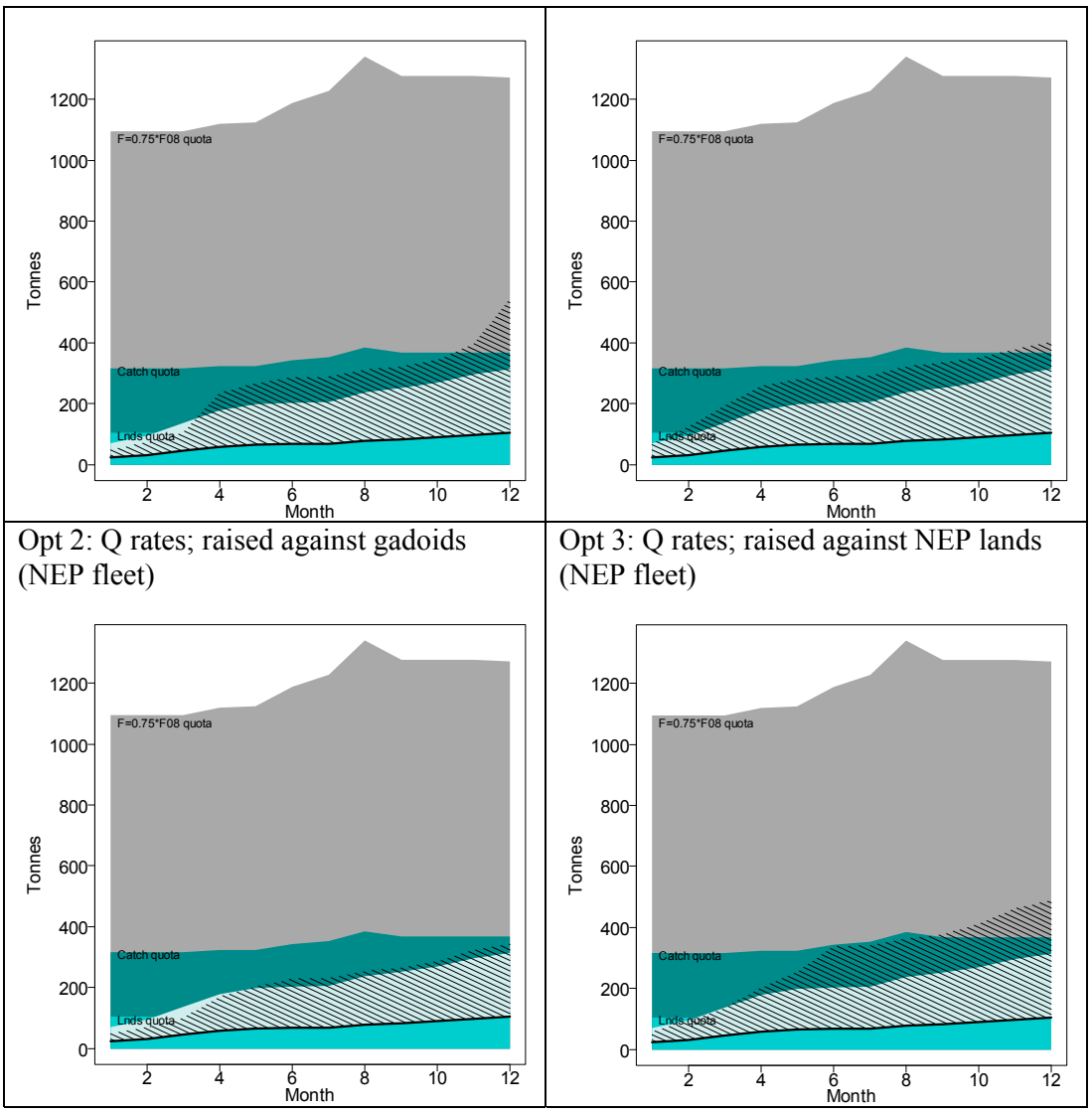

Figure 20. Trajectory of cumulative West of Scotland cod landings and discards. Discards raised from discard rates for all sizes of fish using landings data from FIN database. Coloured horizontal bands represent at their upper boundaries annual limits for (moving from lowest to highest band):

- "Lnds quota" block are landings assigned to Scottish producer organisations;
- "Catch quota" block derived by adding discards to the landings quota by applying the 2008 annual discard rate for the international fleet estimated by ICES (67%);
- "F=0.75*F08 quota" block = Scottish quota share of the cod removals predicted by ICES to deliver a 25% reduction in F in 2009 compared to 2008.

Bold black line represents cumulative landings.
Top of hatched area represents cumulative catch (using D% raised discard observations).
Top of pale area underlying hashed area represents cumulative catch assuming the 2008 annual discard rate for the international fleet estimated by ICES (67%).

7.10. STECF SGMOS Summary of main observations and findings from SGMOS-09-05 concerning Deep Sea and Western Waters

Appendix II

STECF SGMOS Summary of main observations and findings from SGMOS-09-05 concerning Deep Sea and Western Waters

General remarks

- The work of SGMOS is to collate and summarise data provided by member states. In this respect the output is dependent on timely submission of accurate material and STECF SGMOS is only able to provide an output which reflects the quality of these data. While every effort is made to accommodate updates and revisions from member states, it is not possible to capture all of these in the finalised reports.
- A comprehensive deep sea data has been provided by a number of countries representing a significant new development in the work of SGMOS. However, the deep sea and western waters effort data from some countries was either not supplied or was incomplete or inaccurate. Shortfalls were most evident in the data from France and Spain and given the prominence of these countries in the areas covered by both control Regulations, render the aggregate data uncertain.
- So far, the data available on deep sea species is mainly restricted to landings information. To gain a true perception of removals from these fisheries, catch data are required.

Review of Deep Sea and Western Waters effort Regimes

- STECF SGMOS provided, for the first time, an evaluation of deep sea and western waters effort and catches. This should be regarded as a work in progress and experiences gained during this first evaluation will inform subsequent developments in approach and presentation.
- TORs were partially achieved by SGMOS but there was insufficient time to address quite a number of the specific questions.
- Generic comments relating to the preparation of data for SGMOS apply to the Deep Sea evaluation and contributed significantly to the delay
- The first TOR implied that deep sea data supplied by Member States directly to the Commission under the requirements of the Deep Sea Regulation 2347/2002 could be used as part of the evaluation. In practise the information was either absent or of poor quality and so was of limited use.
- SGMOS discussed definitions for what should constitute Deep Sea activity. Several options were identified and it was felt that the definition embedded in the Regulation is not necessarily the most appropriate. A ‘decision tree’ approach has been employed for the present the most appropriate. Discussion of approaches using bathymetric data linked to VMS were considered for future development.
- STECF SGMOS presented effort trends for each member state and gear by ICES (and CECAF) areas. The general position is that effort in a number of gears (particularly otter trawls) and countries has declined in recent years. This is most evident in the most northerly areas. Increases in the effort of longliners has occurred in a number of areas.

- SGMOS also presented information on catches and catch composition. This is very detailed but in general shows reductions in the landings of a number of species across the range of areas reported. One exception is the landings of certain deep water sharks in the more southerly ICES areas.
- A detailed review of the Annex I and II lists of species was provided by the group with recommendations for some adjustments when the Regulation is reviewed.
- STECF SGMOS had insufficient time adequately to consider overlaps with other effort regimes and encountered difficulties in interpreting the Western Waters effort information where some very aberrant numbers were generated for some member states.

European Commission

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Abstract

The Scientific, Technical and Economic Committee for Fisheries hold its 34th plenary on 12-16 July 2010 in Copenhagen. The terms of reference included both issues assessments of STECF working group reports and additional requests submitted to the STECF by the Commission. Topics dealt with ranged from fisheries economics to management plan evaluation issues.

The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.

The Scientific, Technical and Economic Committee for Fisheries (STECF) has been established by the European Commission. The STECF is being consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations.

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